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ABSTRACT

Presented is the 1976-77 evaluation report of the Alexandria Program for the Gifted and Talented, a multi-dimensional approach to the differentiated education of children in grades 4 through 6 with exceptional abilities in both the cognitive and artistic areas. In Section I, an overview of the program is provided and it is explained that special attention was given to academic achievement, development of creativity, social relations, self concept, and positive attitudes toward school and learning. Considered separately in the following five sections are the methodology and results of the analyses of student test data, data from the survey of parents, teacher survey data, 3-year trends in student test data, and the expanded comparison study. Among conclusions from each section are the following: basic problems were in the areas of creativity, attitude toward school, and in some aspects of social relations; parents believed that the program was beneficial to their child's progress in school; overall, the teachers gave only "average" ratings to the programs; the longitudinal analysis supported the merits of the program; and in comparison with a random sample of students from the general school population and those who had been part of the gross screening process, the program was found to have beneficial effects consistent with its goals. Appended materials include a description of the instruments used in the study, an explanation of statistical terms, a summary of parent comments, and specimen copies of parent and teacher survey forms. (SBH)

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Design Exploration for Talented Elementary Students

Evaluation 1976-77

ED166864

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Title IV C ESEA
Alexandria City Schools
Alexandria, Virginia

EC104198

ALEXANDRIA PUBLIC SCHOOLS
PROGRAM FOR THE GIFTED AND TALENTED

FINAL EVALUATION REPORT
FOR
YEAR THREE: 1976-1977

SUBMITTED BY

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GENERAL SUMMARY

The *Alexandria Program for the Gifted and Talented* is a multidimensional approach to the differentiated education of pupils with exceptional abilities in both cognitive and artistic areas. This is the final report of three year evaluation study which has closely studied the program during its cycle of funding under Title IV-C ESEA.

The program has been experimental in nature, and has explored the effectiveness of three separate *program options* as described below.

Interest Activity: Students plan and conduct an activity related to their area of gift under the supervision of a trained teacher. Participation in the interest activity takes place outside the regular classroom, but does not substitute for regular instruction.

Curriculum Area Learning Center: Pupils leave their regular classrooms for an advanced class in the subject area of their gift. Participation in the class constitutes regular instruction in the subject; this is the only option in which the staff of the gifted and talented program are wholly responsible for assessment of the pupil's progress.

Enrichment: A helping enrichment person (H. E. P.) assists the regular classroom teacher in providing materials and activities to enrich the child's regular classroom work. The H. E. P. meets frequently with the child to provide the additional instruction and to monitor progress.

The program has the following goals with respect to pupil performance:

- The *academic achievement* of pupils will be enhanced as a result of participation in the program.
- The program will foster growth in *creativity* among its pupils.
- The pupils will suffer no deterioration in their *social relations* as a result of participation in the program; particularly, the program will seek to avoid social pathologies such as "elitism" or "withdrawal."
- The program will seek to foster a healthy *self-concept* in the pupils, while avoiding extremes.
- The pupils in the program will develop a positive *attitude toward school and learning.*

These goals were made operational in terms of specific *standards for performance.* A three year evaluation study monitored the progress of pupils in each area; this study employed information from four independent sources:

- *Student Testing:* Students were tested in each of the five areas at the beginning and end of each school year.
- *Survey of Parents:* A questionnaire was distributed to parents of the gifted and talented students to determine their perceptions of the impact of the program in each of the areas.
- *Survey of Regular Classroom Teachers:* The teachers who are responsible for the pupils when they are not participating in program activities were asked to rate the effectiveness of the program in meeting its goals.
- *Comparison Group:* A representative group of pupils was sampled from the general school population and was tested in the final year as a comparison standard for the performance of the gifted and talented pupils. Two groups were involved: (1) a general population sample which permitted comparison with the "typical" pupil in the Alexandria schools; and (2) a sample of pupils who had high achievement scores but who were not selected for the program. Thus, it was possible to compare performance of the gifted and talented pupils with baseline data from other pupils who had normal *and* above normal academic achievement.

In addition to an evaluation of the extent to which the program met its five stated goals, this paper also discusses general topics of interest to the Alexandria schools, such as the "fairness" of the selection procedures, the dissemination of information about the program and the overall relations of the gifted program with the regular classroom.

SELECTION INTO THE PROGRAM

Pupils in grades 4 through 6 enter the program upon the nomination of parents, teacher and/or other persons in the community. Pupils in *academic areas* are slected upon the basis of their school records (gross screening) and a program of individual testing by the school psychologist. Pupils enter the *arts areas* after review of either performance or portfolio by jury composed of teachers in each subject field.

The effects of this selection process were studied by comparing pupils who had been admitted to the program with a random sample of pupils drawn from the general school population. A comparison of the distribution of pupils in each group was made with respect to ethnic background, sex and socioeconomic status which indicated that the selection criteria were *fair* (i. e., the distribution of pupils in the program were very similar to those in the general population). Further, it was observed that the program casts a "wide net" in forming the pool of candidates for entry: an estimated 25% of all pupils were considered for the program. Finally, a comparison of test scores among these groups yielded support for the notion that academic achievement was not the sole basis for selection and that creativity plays an important role in the process.

Thus, the data support the essential "fairness" and sensitivity of the program selection criteria.

EFFECT ON ACADEMIC ACHIEVEMENT

The data show that pupils in the program met the performance standards for all three years of program operation and that the gains in achievement by pupils in the program generally surpassed those of pupils in both the general population *and* those who had initially high achievement scores but were not selected into the program. In general, the performance of pupils in the program has improved during each of the three years of operation.

The highest gains in achievement were made by multitalented pupils–those with gifts in both academic and arts areas. Further, no meaningful differences in achievement were found with respect to socioeconomic status, indicating that the program's effects are primarily due to the amount of "talent" present rather than to irrelevant variables.

Of the three program options, the CLC appears to produce the largest gains in achievement, particularly in the area of mathematics. However, all program options met or exceeded the performance standard for achievement.

A longitudinal analysis of students who had been in the program for all three years of operation was also conducted which reinforced these findings. However, the data also indicated that there is considerable change in test scores during the *summers* (i. e., between the last measurement in one year and the first measurement in the succeeding year). This effect was not explained in terms of the existing data base and may represent the effects of maturity, consolidation of knowledge or additional learning experiences gained outside the schools. The "summer effect" was present in the general population, but at only one quarter of the magnitude observed in the gifted and talented pupils, yielding an interesting research question for future studies.

The bulk of the data, therefore, indicate that the program has a beneficial effect on academic achievement of the pupils–although other variables may play a strong role in interaction with the program.

EFFECT ON CREATIVITY

Because of the complexity of the concept of "creativity," the discussion of program effects in this area is in itself somewhat complex and resists summary in concise form. The data show that pupils in the program are clearly "more creative" than the general population on all four dimensions (i. e., fluency, flexibility, originality, elaboration) measured by the tests. Further, pupils in the program have had meaningful growth in "creativity" during their association with the program, which *generally* meets or exceeds the performance standards set in the area.

However, the gains in creativity vary according to program option:

- The *Enrichment* group has its best performance on the *fluency* subscale which is linked to the rate of production of ideas.
- The *Interest Activity* group scores highest on the *flexibility* subscale which is linked to the diversity of production of ideas.
- The *Curriculum Learning Center* group excels on the *orginality* and *elaboration* subscales which are linked (respectively) to the production of novel and of well-defined ideas.

The data base does not permit a full explanation of these trends, although they have persisted during the two years in which comparable* testing has been done.

*During the fist year, a verbal form was given to "academic" students and a figural form to the arts pupils. During years two and three, the figural form was used for all pupils.

Pupils with gifts in both the arts and academic areas combined generally have higher scores on the four creativity subscales than those with gifts in one area only. However, there do not appear to be major differences in the creativity scores of academic and arts pupils. The tests used to measure the four aspects of creativity are scored in such a fashion that is "blind" to the technical artistic skills (e.g., sketching, perspective) of the subject. An expert in drawing would not necessarily receive high scores on the test due to this portion of his/her talent.

Further, the changes in creativity do *not* show any appreciable "summer" effect–indicating that growth on the measure is primarily determined by activities which occur during the school year.

The positive findings were tempered by indications that the gains in creativity during year three were less than those observed during year two. This decline was supported by the student test data and was corroborated by the ratings of both parents and teachers.

Thus, although the program is performing in accordance with the standards, there is some evidence of a downward trend in the creative development of the pupils which should receive attention from program management.

SOCIAL RELATIONS

During all three years, warnings have been sounded by a number of teachers and a few parents about the social consequences of providing differentiated education for the gifted: the problems of "elitism" on the part of pupils in the program and of reactivity on the part of those not in the program.

The program has been attentive to these problems through a careful monitoring of the social relations of pupils in the evaluation data.

The results are quite unequivocal: *the program has little or no effect on the social relations of pupils:*

- Pupils are, for the most part, very close to the statistical norms set for the measures of social relations–with the sole exception that they *begin and end* the program with an unusually high degree of independence.
- With the exception of the independence factor, the social relations scores of pupils in the gifted and talented program are virtually indistinguishable from those of pupils who were randomnly sampled from the general school population.
- A longitudinal analysis of pupil scores taken at six regularly spaced periods during the three years of program operation shows little-or-no fluctuation from the statistical norms. Further, no trends were observed in the series of data which could be interpreted as deviations from the norm, or as movement in an unfavorable direction.

The only discordant note in the picture comes from the regular classroom teachers who indicated that some pupils–most noticeably in C. L. C. schools–had exhibited attitudes of "superiority." However, these reports were inconsistent with the student test data and the reports of the parents.

Thus, the preponderance of the evidence collected by the evaluation study indicates that the program has little or no effect on social relations. In particular, the evidence indicates that the program has not contributed to any social pathologies, such as "elitism."

SELF-CONCEPT

The program has carefully monitored the self-concept of pupils in the program with the intention of detecting adverse changes, such as "stigmatism" or "over confidence." All sources of information indicate that the pupils began the program with generally normal self-image–and that the program has had little effect in this area.

A "summer effect" was observed in self-concept scores: although there was little change observed *during* the school year, there was a trend towards mild increases–on the order of three points on an eighty-point scale–during the summers.

In comparison with the general population, pupils in the gifted program were found to have slightly higher scores on the self-concept measure. However, both groups were within the range which has been shown to be statistically normal.

In addition, the ratings of parents and teachers were in conformity with the results observed in the student testing program.

Thus, the program has a mildly beneficial effect on the self-concept of pupils which is consistent with its recognition of their special talents; however, the effect is not so large as to produce pathological behaviors in the pupils.

ATTITUDE TOWARD SCHOOL AND LEARNING

The program intends to produce a positive attitude toward school and learning on the part of its pupils, hopefully eliminating problems stemming from lack of challenge in the regular classroom.

The student test data showed consistent *declines* in this area during the school year. However, the longitudinal analysis showed a strong "bounce back" effect during the summers. The net change over the three years is in the direction of a more positive attitude toward school and learning.

Further, in the comparison studies, pupils in the gifted program had more positive attitudes towards schooling than the general population. These findings have led to the conclusions that the declines observed during the school year may represent the temporary effects of fatigue or a general end-of-year let-down.

When the longitudinal analysis, comparison studies, parent and teacher surveys are combined, they lead to the conclusion that the program indeed has a beneficial effect in enhancing student attitudes toward school and learning

OTHER ISSUES

The teacher survey data indicate that the program has not had an appreciable effect in the enhancement of regular classroom activities. Teachers gave less than average ratings to the exchange of information between the program and the regular classes, and gave only average ratings to the enhancement of classroom activities.

During year one, parents criticized the amount of information received about the program. Information dissemination activities were mounted by the program with the net result that parents have come to be more informed about the program. However, the nature of parent comments have changed during years two and three: parents have moved from a concern about the nature of the program's activities to an interest in the regular monitoring of pupil progress.

Some parents offered comments to the effect that regular classroom teachers were not supportive of the program. However, the survey of teachers established that teachers have a positive attitude toward the differentiated education of the gifted. Thus, teacher resentment of the program seems to be unlikely–although teachers do give the program the lowest ratings of all groups surveyed during the study.

OVERALL SUMMARY

The vast bulk of the evidence indicates that during the program's three years of funding under the Title IV-C ESEA, it has been successful in meeting its stated goals. The program has stimulated the growth of pupils in academic achievement and creativity while preserving their social relations. In addition, the program has a mildly beneficial effect on self-concept and attitude toward school and learning.

The program has received considerable support from the Alexandria School Board which has committed local funds to retain the program on a system-wide basis in grades 4 through 6. In addition, the program has been extended to the middle schools in grades 7 and 8.

DESCRIPTION OF THE PROGRAM

The *Alexandria Program for the Gifted and Talented* represents a multi-dimensional approach to the differentiated education of children with exceptional abilities in both cognitive and artistic areas–employing a number of strategies to challenge these persons in the teaching-learning process. The program is an experimental effort, exploring the effectiveness of three separate *program options* which employ methodology and materials which differ from those found in a conventional education center. These are:

> *Interest Activity:* Students leave their regular classroom and come to an area where a specially trained teacher assists the pupils in the planning and conducting of activities in their areas of exceptionality–including mathematics, language arts, social studies, science and kinesthetics. The emphasis is upon identification of topics which are of natural interest to the pupils and the execution of projects which are within these areas of interest.
>
> *Curriculum Area Learning Center:* is an area set aside for differentiated education in four academic curriculum areas: mathematics, language arts, social students and science. A specially trained teacher prepares an advanced class in one of these four areas; pupils leave their regular classroom for instruction in as many of the areas as they have been judged to have exceptionality. Instruction in the *Curriculum Learning Center* (C. L. C.) takes the place of instruction in each subject in the regular classroom. Pupils may participate in the C. L. C. in from one to four areas.

Enrichment involves the augmentation of the exceptional child's regular classroom work; a *Helping Enrichment Person* (H. E. P.) assists the regular classroom teacher by providing resources (materials, methods and counsel) which would enrich the exceptional child's in-class work. The H. E. P. is to work with the teacher approximately 40% of the time and devote the remaining 60% to working directly with pupils.

Children from grades 4 through 6 enter the program through two routes after being nominated by parents, teachers and/or community persons.

Academic Area: A gross screening committee reviews the nominee's school record, including grades and test information. Those who meet the gross screening criteria are given further testing by the school psychologist (after parental permission is given). Based on an individual report prepared by the school psychologist, a final selection committee determines entry to the program.

Arts Area: A jury, composed of teachers in each talent field (vocal music, instrumental music, visual arts and kinesthetics) reviews the past works of the nominee–through audition, performance or portfolio–and makes recommendations to the final screening committee for entry into the program.

Gifted and talented are considered as synonomous as far as the project is concerned; persons may participate in the academic or arts areas to the extent that they have evidence of exceptionality.

At each point in the selection process, parents retain the right of review and of appeal to a committee chaired by the Assistant Superintendent of Instruction.

The three program options are located in the following schools:

Interest Activity: Stonewall Jackson, Mount Vernon and John Tyler.

Curriculum Learning Center: Charles Barrett, Lyles-Crouch, George Mason.

Enrichment: Patrick Henry, Douglas MacArthur (Grade 4 only during years 1 and 2), Robert E. Lee (Grades 5 and 6, Grade 4 added in year 3), William Ramsay.

A student is constrained to enter the program offered at the school to which he is assigned. (i.e., a student who is assigned to Charles Barrett School may only enter the CLC program option at that school.)

DESCRIPTION OF THE EVALUATION STUDY

This report covers year 3 of a three-year study of the Alexandria *Program for the Gifted and Talented.* During years one and two, previous reports have described the successful performance of the program in terms of promoting growth in academic achievement and creativity without undue or adverse effects on the self-concept or social relations of the pupils.

The evaluation study reported in year 2 contained an analysis of a small number of student records as a comparison group, to match the gifted and talented pupils with pupils from the general Alexandria school population. This "comparison" study received wide interest, but was quite limited, since it employed only archival measures of academic achievement. Accordingly, the "comparison" study was *expanded* in year 3 to include the collection of a broader base of data, including:

- *Self-Concept*–as measured by the Piers-Harris Children's Self-Concept Test.*
- *Social Relations*–as measured by the *FIRO-BC** battery.
- *Creativity*–as measured by the Torrance Tests of Creative Thinking.*
- *Attitude Toward School and Learning*–as measured by "About Me"*, an instrument constructed specifically for this program.

This expanded comparison group required additional testing of pupils who were not direct recipients of services provided by the gifted and talented program. All such testing was done on a voluntary basis with parental permission.

The study reported in this volume constitutes a replication of the evaluation study conducted in the previous two years and includes:

*Each of these instruments is described in detail in Appendix A.

- *Replication of the Student Testing Program* using measures of academic achievement, creativity, social relations, self-concept, and attitude toward learning. This portion of the study would concentrate on assessment of program performance with objective standards set in conjunction with the Title IV-C ESEA office.
- *Replication of the Survey of Parents* to assess parent perspective on the effects of the program upon their children.
- *Replication of the Survey of Teachers* to determine their professional observations about the program and its effects; this study would provide a third value perspective on the program in support of both the testing and parent data.
- *Execution of an Expanded Comparison Group Study* which would provide a comparison of pupils in the gifted and talented program with those in the general population on the entire spectrum of attitude, achievement and creativity measures.
- *Examination of Three-Year Trends:* From 1974 thru 1977, one class of pupils has spent three full years in the program, moving from fourth through sixth grade. This group of pupils were isolated and subjected to longitudinal analysis.

The results from each of these five separate inquiries are presented in the following sections.

SECTION ONE
ANALYSIS OF STUDENT TEST DATA

The student test data was gathered at the beginning of the school year (pretest) and at the close of the year (posttest). This study replicates similar data collection efforts conducted in year 1 (1974-1975) and year 2 (1975-1976). This section is concerned with the analysis and interpretation of data collected in year 3 (1976-1977). Section Five presents a longitudinal view of student performance over the three program years.

METHODOLOGY

Five separate tests were administered to all students who participated in the program for Gifted and Talented:

- *Piers-Harris Children's Self-Concept Test*
- *FIRO-BC:* an instrument which measures interpersonal relations among children.
- *S. R. A. Achievement Series:* which includes subtests in reading, language arts, mathematics, social studies and science.
- *About Me:* which measures attitude toward school and learning.
- *Torrance Tests of Creative Thinking.*

Each of these instruments are described in greater detail in Appendix A. The testing was supervised by Ms. Roberta New of the Alexandria schools' Pupil Personnel Services office. All tests were scored by the evaluator's staff with the exception of the SRA battery which was scored by the publisher. All data were encoded onto special forms and keypunched by a commercial service subject to 100% key verification. The analysis was performed on the CDC 6400 machine at the University of Virginia Computing Center using programs specifically constructed for this evaluation study.

The results of this analysis are presented below for each of the five instruments.

1. ACADEMIC ACHIEVEMENT

The program set the following standard for pupil performance in the area of academic achievement in its evaluation plan as submitted to the Title IV-C, ESEA authorities:

> *"By the end of the 1976-1977 school year, the academic achievement of Title IV-C, ESEA students will increase by 15 or more points on the growth scale of the composite measure of the SRA Achievement Series."*

The composite subscale of the SRA series is a weighted combination of the scores on the individual tests in reading, mathematics and language arts.

The results were very favorable to the program. As shown in Figure 1 (next page), all three programs met the growth standard. An analysis of variance revealed a significant effect of options (p LT .05). The Scheffe* comparison technique revealed that the Curriculum Learning Center option experienced significantly greater growth than either the Interest Activity or Enrichment options.

With respect to individual schools, Lee School was the only school in which pupils failed to meet the growth standard; however, at Lee, the average growth was 12.5 points which approaches the standard.

The change data by school is presented in Figure 2 (see next page).

In previous years, it was noted that students with exceptionalities in both academic and arts areas did much better than those with exceptionalities in only one area. In year 3, similar results were found, as shown in Figure 3 (see page 9). On the basis of these three-year findings, the data would lend support to the hypothesis that there is a synergistic effect of exceptionalities in a wide variety of areas, and that the gifted child should have his or her talents developed to the widest extent possible.

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*Scheffe's method permits the comparison of groups within an analysis of variance design within the overall confidence limits of the experiment.

FIGURE 1
CHANGE ON THE SRA COMPOSITE MEASURE
FROM PRE-TO-POST BY PROGRAM OPTION
(GROUP MEANS DISPLAYED)

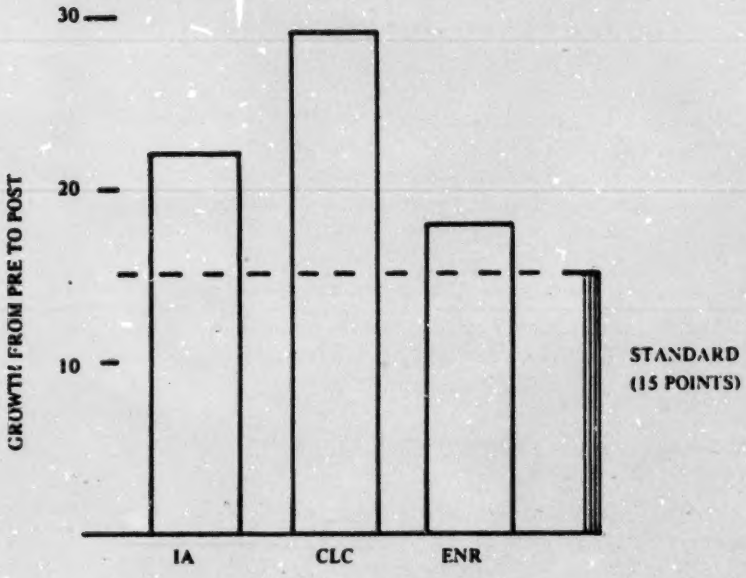


FIGURE 2
CHANGE FROM PRE-TO-POST
ON THE SRA COMPOSITE MEASURE BY SCHOOL
(GROUP MEANS DISPLAYED)

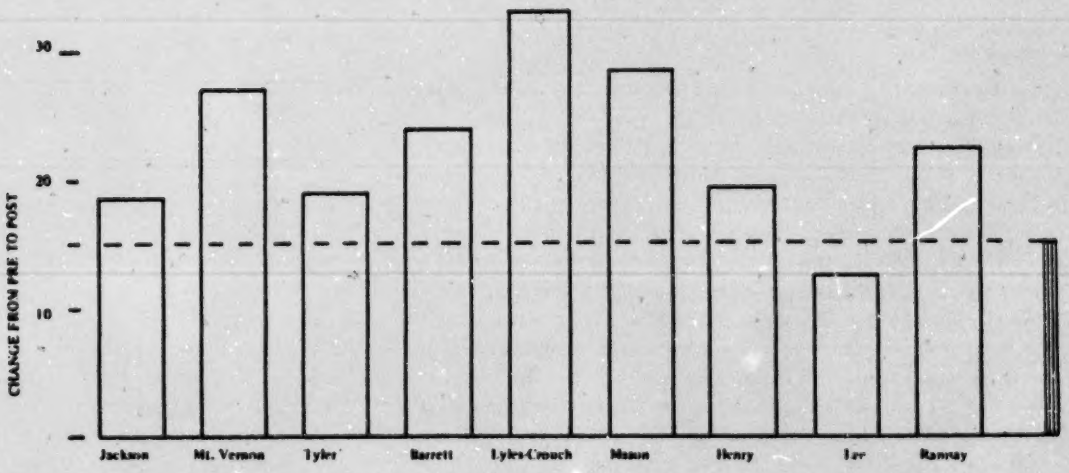
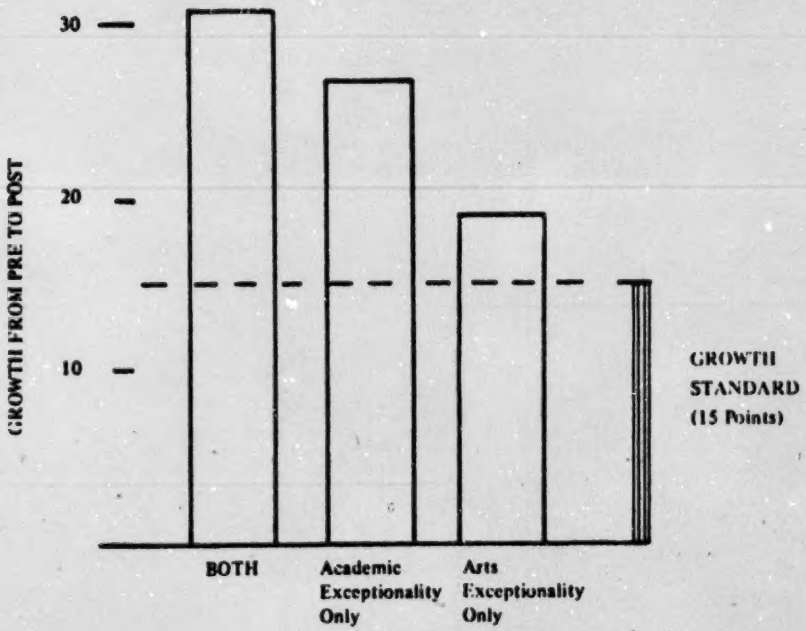
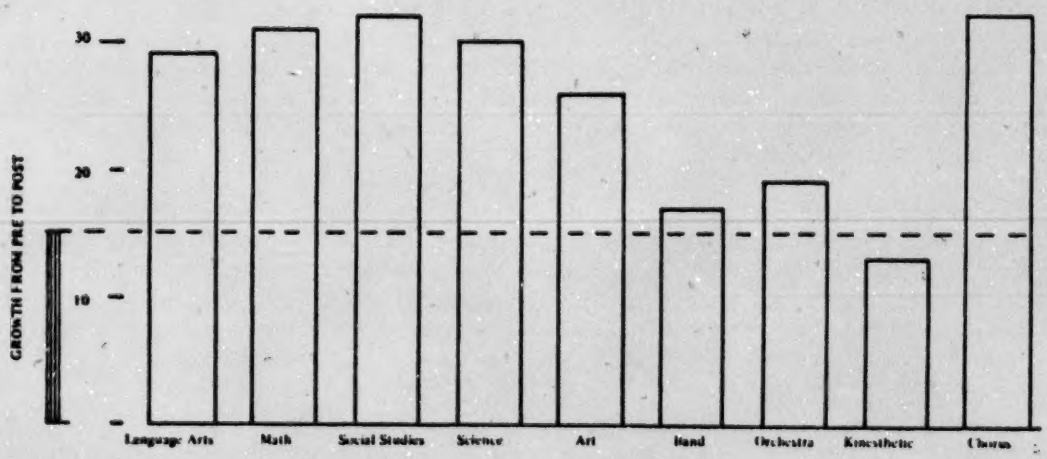


FIGURE 3
CHANGE FROM PRE-TO-POST ON THE SRA
COMPOSITE MEASURE BY TYPE OF EXCEPTIONALITY
(GROUP MEANS DISPLAYED)



The data were also analyzed by the nine specific areas of exceptionality recognized by the program. These data are presented in Figure 4.

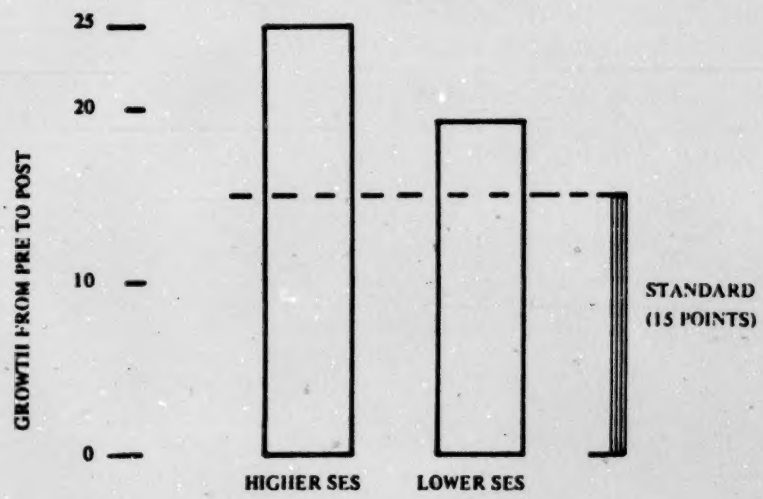
FIGURE 4
CHANGE FROM PRE-TO-POST ON THE SRA
COMPOSITE MEASURE BY SPECIFIC AREA OF EXCEPTIONALITY
(GROUP MEANS DISPLAYED)



The data show that children with exceptionalities in the academic areas tend to have slightly higher growth in academic achievement than those in the arts areas. However, with the exception of the "kinesthetics" group, all groups exceeded the growth standard set for the measure. Thus, children with all types of exceptionalities seem to benefit from the program in terms of academic achievement.

Further, the gains achieved by the program appear to be relatively independent of Socioeconomic Status (SES). The evaluation study employed a rough measure of SES based on the School Lunch Subsidy: pupils receiving such a subsidy were included in the "lower SES" group, while those not receiving such a subsidy were included in the "higher SES" category. The results are shown in Figure 5:

FIGURE 5
CHANGE FROM PRE-TO-POST ON THE SRA COMPOSITE MEASURE BY SOCIOECONOMIC STATUS (GROUP MEANS DISPLAYED)



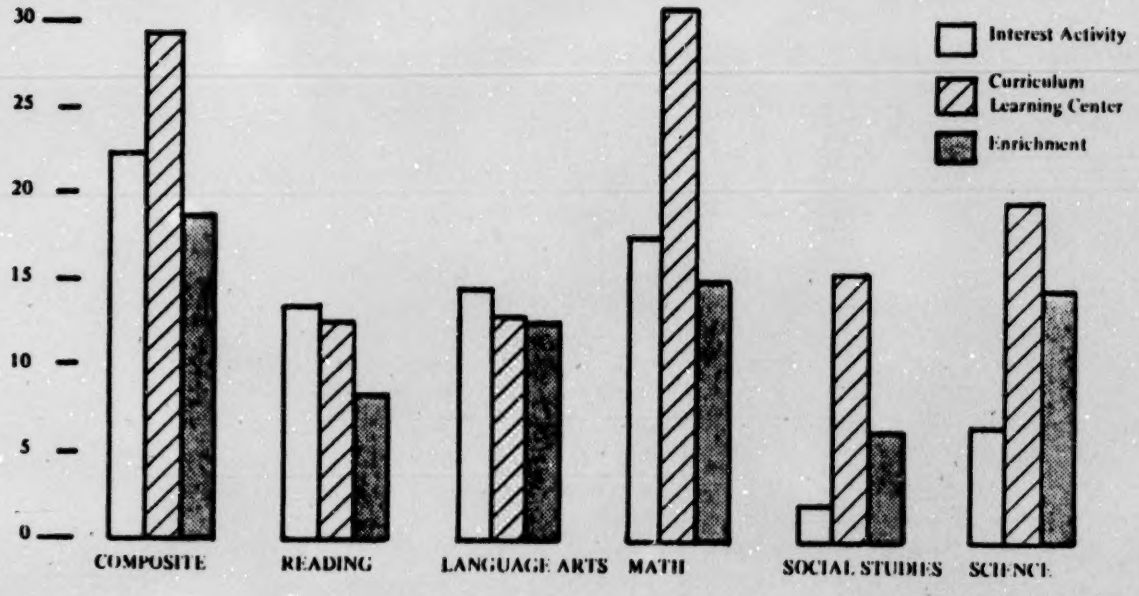
Although the higher SES group experienced a slightly larger amount of growth, the difference between the two is not statistically significant. Both groups met the growth standard. Thus, the data are consistent with the hypothesis that students benefit from the program regardless of socioeconomic status.

The composite measure represents a weighted combination of individual subscale scores. These subscales are presented in Figure 6 (see next page).

The data show that the Curriculum Learning Center (CLC) group enjoyed exceptional growth in the area of mathematics, gaining more than thirty points. Further, all three options seem to be approximately equal in promoting growth in reading and language arts, while the CLC seems to be far superior in promoting gains in mathematics, social studies and science.

In summary for academic achievement, all groups met the growth standard set for the SRA composite measure. As observed in the previous years, children with gifts in both academic and arts areas do much better than those with exceptionalities in only one area; however, children with exceptionalities in each of the nine areas recognized by the program appeared to benefit from the program. Finally, of the program options available, the Curriculum Learning Center (CLC) produced gains which generally were larger than those observed in the other options. Of particular note were large gains in mathematics observed in CLC pupils.

FIGURE 6
CHANGE FROM PRE-TO-POST ON THE SRA
ACHIEVEMENT SERIES SUBSCALES BY PROGRAM OPTION
(GROUP MEANS DISPLAYED)



2. CREATIVITY

The analysis of creativity is based on a less firm theoretical foundation than that of academic achievement. The reader should study the discussion of the problems and complexity of measuring "creativity" presented in Appendix A. In particular, there is no single or aggregate measure of creativity which is analogous to the composite scale of the SRA Achievement Series. The evaluation design employed the Torrance Tests of Creative Thinking which is the most widely accepted measure of "creativity" which is feasable within the resource limitations of the study; it contains four subtests which assess different facets of "creativity." Accordingly, the performance standards were set for each of the four subtests for the Torrance Tests, as follows:

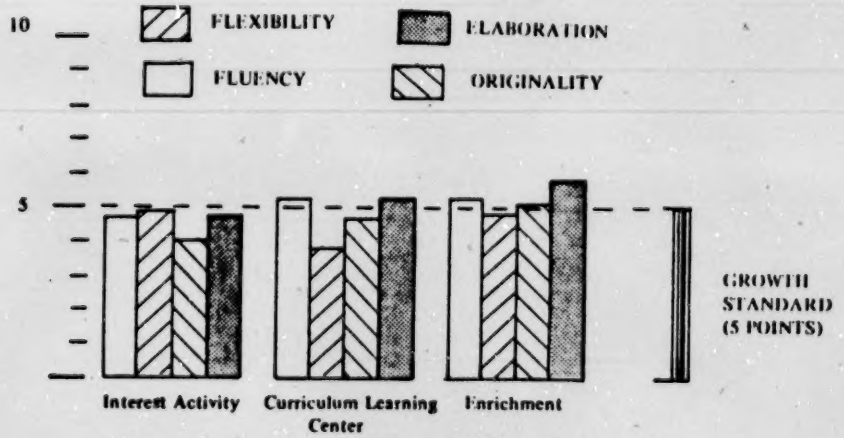
> *"By the end of the 1976-1977 school year, Title IV-C, ESEA students in each group will have an increase in mean score on each subtest of the Torrance Tests of Creative Thinking."*

The data for year 3 showed an overall drop in creativity from the levels noted in years 1 and 2. Overall, change in creativity had been averaging approximately eight to nine points. During year 3, the changes were on the order of five points, approximately equal to the growth standard. The four subscales are described below:

- *Fluency:* The Torrance Tests pose a series of problems (e. g., "make as many things as you can out of a set of circles). Fluency represents the number of relevant responses made. Thus, a person with a high fluency score can be described as one who can envision a large quantity of alternatives in a given situation.
- *Flexibility:* For each of the Torrance problems, "flexibility" represents the ability of the subject to respond using a wide variety of categories. Using the example given above, a person could achieve a high "fluency" score by using the circles to draw a large number of faces. However, to achieve a high flexibility score, the subject would have to use the circles in a broad variety of ways (e. g., a clock, a table, the sun, etc.). Thus, a person with a high flexibility score would be considered as one who can envision a wide variety of distinct alternatives in a given situation.
- *Originality:* Each of the problems on the Torrance Test is accompanied by extensive background data which permits an assessment of the degree to which a particular response is uncommon or unusual, defining "originality" in terms of departure from statistical norms. A person with a high originality score may be considered as one who can envision novel alternatives in a given situation.
- *Elaboration:* The figural form of the Torrance Tests includes a scale which measures "elaboration" or the extent to which the subject provides detail in the drawing. For example, if a face was drawn, the respondent would receive an increasing number of points as he or she added recognizable features such as eyes, ears, nose, eyebrows, earrings, birthmarks and the like. Thus, a person with a high elaboration score could be considered as one who would have a *keen attention to detail.*

The data for the Torrance Tests are presented in Figure 7, below.

FIGURE 7
CHANGE FROM PRE-TO-POST ON THE FOUR SUBSCALES OF THE TORRANCE TESTS OF CREATIVE THINKING, BY PROGRAM OPTION (GROUP MEANS PRESENTED)

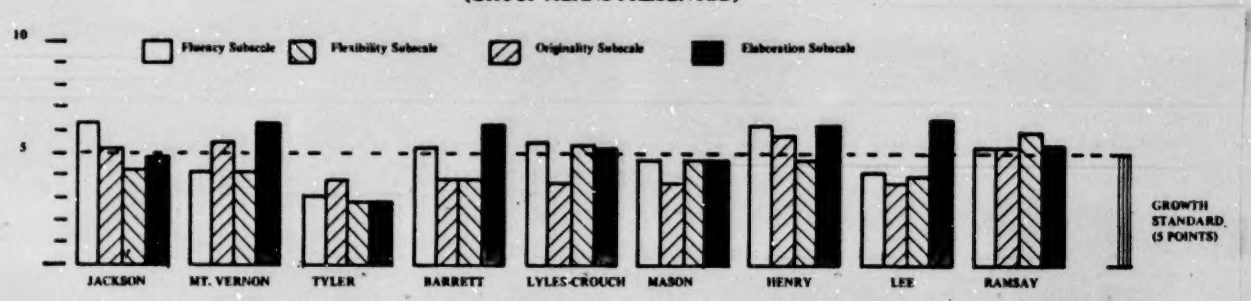


As is shown in Figure 7, the children in the Interest Activity failed to meet the growth standard on all four subscales of the Torrance Tests. The CLC option met the standard for two of the subscales and the Enrichment group exceeded the standard on three subscales. None of the options was able to meet or exceed the growth standard on the flexibility subscale.

These results were not expected on the basis of results from the previous two years when much larger gains in creativity were observed. In the section on the Parent Survey, it will be shown that the parent ratings confirm this downward trend.

Additional analysis revealed that the limited growth in creativity was localized in some schools, particularly Tyler and Mason. The data showing growth by school are shown in Figure 8, below.

FIGURE 8
CHANGE FROM PRE-TO-POST ON THE FOUR SUBSCALES OF THE TORRANCE TESTS OF CREATIVE THINKING, BY SCHOOL (GROUP MEANS PRESENTED)

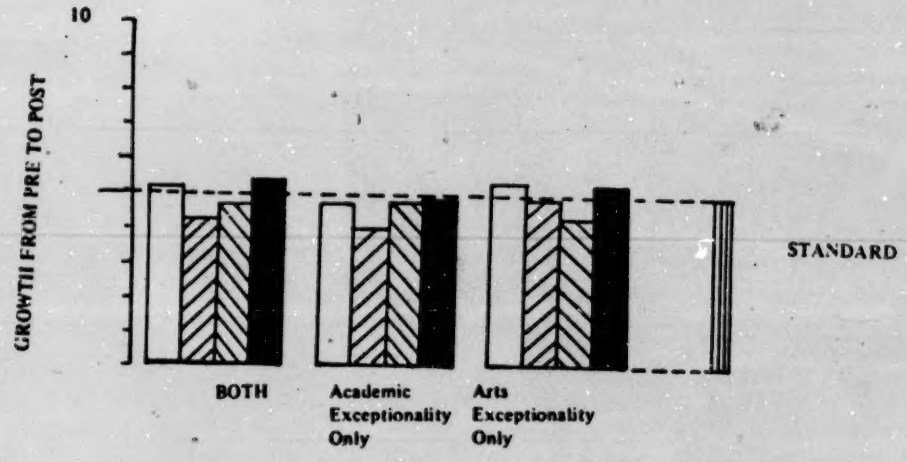


All schools with the exception of Mason and Tyler met the growth standard for the Torrance Tests of Creative Thinking.

Only Ramsay school exceeded the growth standard on all four subscales.

The data indicate that pupils with exceptionalities in arts areas may have experienced greater growth in creativity than those in academic areas.

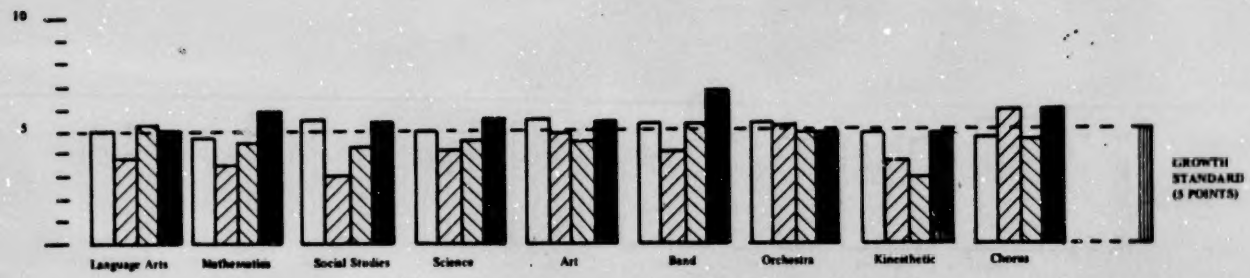
FIGURE 9
CHANGE FROM PRE-TO-POST ON THE TORRANCE TESTS OF CREATIVE THINKING BY EXCEPTIONALITY (GROUP MEANS PRESENTED)



As shown in Figure 9, students with gifts in the arts areas (either alone or in conjunction with academic gifts) met the growth standard on the fluency and originality subscales, while those with gifts in academic areas met *none* of the standards.

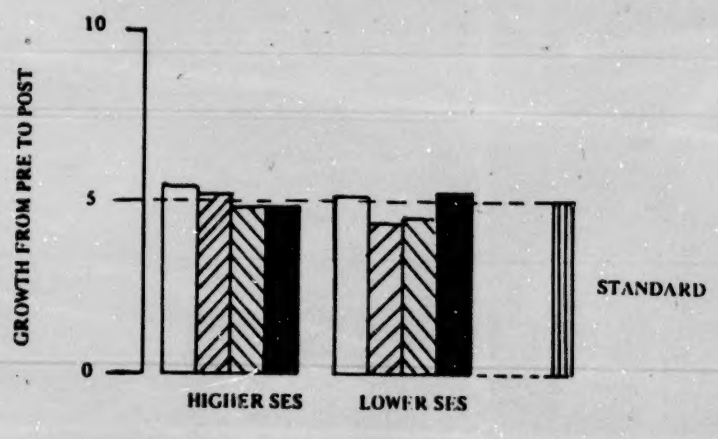
Figure 10, below, presents a more detailed analysis of the growth on the Torrance Tests by the nine areas of exceptionality recognized by the program.

FIGURE 10
CHANGE FROM PRE-TO-POST ON THE FOUR SUBSCALES OF THE TORRANCE TESTS OF CREATIVE THINKING BY AREA OF EXCEPTIONALITY (GROUP MEANS PRESENTED)



As shown in Figure 11, socioeconomic status has little or no relation to growth in creativity.

FIGURE 11
CHANGE FROM PRE-TO-POST ON THE FOUR SUBSCALES OF THE TORRANCE TESTS OF CREATIVE THINKING BY SOCIOECONOMIC STATUS



In summary for creativity, the program experienced a decline in gains on the Torrance Tests from previous years. Pupils in the Interest Activity option failed to meet the growth standard for all of the subtests. Pupils with exceptionalities in the arts areas did better on the creativity measures than those in the academic areas. Finally, no effect of socioeconomic status on creativity was observed.

3. SOCIAL RELATIONS

By design, the program does not intend to have a direct effect upon the social relations of the pupils. Rather, the program's intent is to foster the development of academic achievement and creativity *without* any concomitant deterioration of the child's socialization. Thus, the measurement of various aspects of social relations has been undertaken in the evaluation design for the purpose of detecting trends toward social pathologies such as elitism, withdrawal, inferiority or stigmatization.

The FIRO-BC instrument is a technique for examining social relations from the point of view of the individual. The instrument (described in detail in Appendix A) contains six subscales which measure the degree to which three aspects of social relations–inclusion, control, and affection–are both expressed and wanted by the subject. Norms are available for children of the age group under consideration.

On the basis of comparing year 1 and year 2 data with these statistical norms, the previous evaluation reports concluded that the gifted and talented pupils were, in general, within the statistical norms for their age group. Thus, in the absence of any consistent departure from the statistical norms, the project management decided that the best interests of the pupils would be served by setting the following performance standard:

> *"By the end of the 1976-1977 school year, the social relations of 75% of the Title IV-C ESEA students will not deviate from the norm by more than one Standard Error of Measurement on each of the subscales of the Fundamental Interpersonal Relations Orientation Inventory for the Behaviors of Children (FIRO-BC)."*

> The *Standard Error of Measurement* (S.E.M.) is an indicator of the tolerance level in scores that may be attributed to the testing process itself: fatigue, misunderstanding of questions or directions, failure to use the response procedures correctly, and the like.

In any testing situation, the Standard Error of Measurement can be used to set "limits of tolerance" on performance which take into account the multiplicity of factors which affect pupil performance. The Standard Error of Measurement, however is not a measure of the variation in scores which occurs as a result of the individual differences between pupils. The approximate measure of such differences is the Standard Deviation (SD). The two are related by the following equation:

$$SEM = SD \times \sqrt{1 - r_{11}^2}$$

where r_{11} is the *coefficient of reliability* of the test. In general, the SEM is somewhat smaller than the SD.

The incorporation of the SEM into the performance standard is an attempt to impose a statistically conservative view of social relations; the standard is set to detect adverse changes in social relations early so that appropriate action may be taken to rectify them. In fact, the two previous studies in years 1 and 2 have shown that the group of gifted and talented pupils are almost "super normal"–that they are much more tightly clustered around the statistical norm than would be a group of children selected from the general population. (The sole exception to this being that the gifted and talented pupils have been slightly less assertive and somewhat more independent than the general population.)*

For the FIRO-BC, the SEM is approximately one point, varying slightly among the six subtests. The data from the 1976-1977 post-tests were analyzed to show the relative position of each of the program options in terms of distance from the published statistical norm as expressed in SEM Units.

For example, for the expressed inclusion subscale, the norm is 5.05 and the standard error is 0.93. Thus, a student with a score of 4 would be approximately 1 SEM below the norm, while a student with a score of 7 would be approximately two SEM above the norm.

The results of this analysis are presented in Table 1 (see next page).

These results show that the program has come very close to meeting the overall performance standard (i. e., many of the "deficient" categories are within one or two percentage points of the standard. However, the pattern of the deficiencies is worthy of investigation:

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*c. *f.* Year 2 Report, p. 13

TABLE 1
COMPARISON OF YEAR 3 (1976-1977) POST-TEST
FIRO-BC SCORES WITH THE PERFORMANCE STANDARD

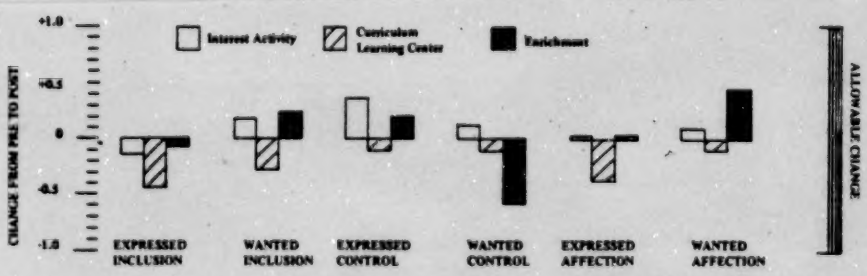
Table entries are the percentage of pupils that are within one standard error of measurement above or below the established norm for each subscale. The performance standard is 75%. All cases where the scores *fail* to meet the standard are circled.

Program Option	Area of Exceptionality	Expressed Inclusion	Wanted Inclusion	Expressed Control	Wanted Control	Expressed Affection	Wanted Affection
Interest Activity	Academic Only	86	80	81	(69)	78	76
	Arts Only	88	85	80	75	83	84
	Both	80	79	75	(72)	90	86
Curriculum Learning Center	Academic Only	81	83	75	(72)	84	81
	Arts Only	83	85	75	(72)	82	83
	Both	81	80	79	(70)	81	80
Enrichment	Academic Only	85	(72)	(74)	(60)	79	87
	Arts Only	80	79	(70)	(55)	78	90
	Both	82	75	77	(79)	80	79

- *Inclusion:* Only one small deficiency was observed. Thus, the data would indicate that there are no serious deficiencies with respect to inclusion–*the degree to which pupils act to include others in activities or desire to be included in such activities.* These data are, therefore, evidence against the presence of undesirable traits such as "exclusivism" or "withdrawal."
- *Control:* The "wanted control" dimension fails to meet the standard for most program options. This subscale of the FIRO measures dependence or the degree to which the subject wishes others to control his or her behavior (i. e., low score indicates "independence"). The pupils in the gifted and talented program have exhibited a *considerable and unusual amount of independence.* Although these results are not in conformity with the performance standard, they are a reasonable outcome of the program itself which places great emphasis on initiative and independent work.
- *Affection:* No deficiencies were found on the affection subscales which measure the extent to which the subject both expects and manifests positive sentiments from and to others. Thus, *the data do not indicate serious problems in the area of affection* and are inconsistent with pathologies such as "elitism" or "stigmatization."

Figure 12, below, presents data on changes in FIRO-BC scores observed from pre-to-post test during year 3.

FIGURE 12
CHANGE FROM PRE-TO-POST ON THE SIX SUBSCALES OF THE FIRO-BC INSTRUMENT BY PROGRAM OPTION



The FIRO-BC scores showed very little change from Pre to Post measures, indicating that the program has little or no effect on social relations. Thus, the data indicate that participation in a program of differential education for the Gifted and Talented does not result in seriously altered social relations.

The FIRO-BC data showed very little change from pre-to-post testing indicating that there has been little or no change in the social relations of these pupils during the year.

In summary for social relations, of 34 possible comparisons with the performance standard, eleven were found to be deficient. Of these, five were within three points of the standard. Further, eight of the eleven deficiencies were on the "wanted control" subscale where an analysis revealed that the pupils had high *independence* a trait consistent with the program's structure.

These data are evidence that the program's effects in the area of social relations are minimal and indicate that the gifted program has not contributed to problems in this area.

4. SELF-CONCEPT

In 1966, the study *Equality of Educational Opportunity*–the celebrated "Coleman Report"–aroused widespread interest within the educational research community by demonstrating the relationship between self-concept–the way a child feels about himself–and academic achievement. In the following decade a number of researchers have explored both the measurement of self-concept and the utility of the construct in explaining aspects of the educational experience. The research indicates that low levels of self-concept are associated with low levels of achievement. The opposite is not necessarily true: extremely high self-concept does not invariably lead to outstanding success in school.

- The child with a poor self-concept may have convinced him/herself of a predetermination to failure and not apply him/herself to the tasks at hand.
- At extremely high levels of self-concept, the child may attempt problems seriously beyond his/her capability–or assume that normal classwork is trivial. Either situation may have detrimental effects on academic achievement.

Thus, the Program for Gifted and Talented recognizes that extremes on the dimension of self-concept are likely to be associated with academic problems. Accordingly, the evaluation design seeks to monitor changes in self-concept within narrow limits, much in the same fashion as described above for social relations. This "monitoring" is conducted only through the use of the testing instruments for the purposes of detecting widespread group trends. The program would not take any action to restrict the growth of any individual child's self-concept.

With the notion of monitoring group trends, the following performance standard was set:

"By the end of the 1976-1977 school year, the self-concept of 75% of the Title IV-C, ESEA students will not deviate from the norm by more than one Standard Error of Measurement as established for the Piers-Harris Children's Self-Concept Scale."

The Piers-Harris test has an eighty point scale. For children of the age and grade range of this program, the established norm score is 57 points; the Standard Error of Measurement (SEM) is 12 points.

- A person with a score of 65 would be within one SEM of the norm, as also would be a person with a score of 46.
- A person with a score of 70 or higher would be more than one SEM above the norm.
- A person with a score of 44 or lower would be more than one SEM below the norm.

The 1977 post-tests were analyzed to determine the percentage of pupils who were within one SEM above and below the norm. These results are presented in Table 2, below.

Of the nine possible comparisons, all meet the performance standard, indicating that the pupils in all program options enjoy a very "normal" self-concept.

Figure 13 (see next page) shows the changes observed over the course of year 3. These data show that very little change in self-concept took place during the year.

The data presented in Figure 14 (see next page) show no particular pattern, indicating that change in self-concept was not localized within any particular area of exceptionality.

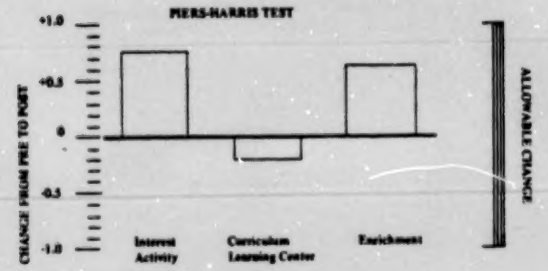
In summary for self-concept, the year 3 data show no appreciable departure from the established statistical norms, nor was change from pre-to-post either noticeably large or confined to any group or area of exceptionality. Therefore, the data are consistent with the hypothesis that the pupils enjoy a healthy, normal self-concept which changed very little over the 1976-1977 school year.

TABLE 2
DISTRIBUTION OF YEAR 3 (1976-1977) POST-TEST SCORES ON THE PIERS-HARRIS CHILDREN'S SELF CONCEPT SCALE

Table entries are the percentage of pupils within one SEM of the norm. The standard for comparison is 75%.

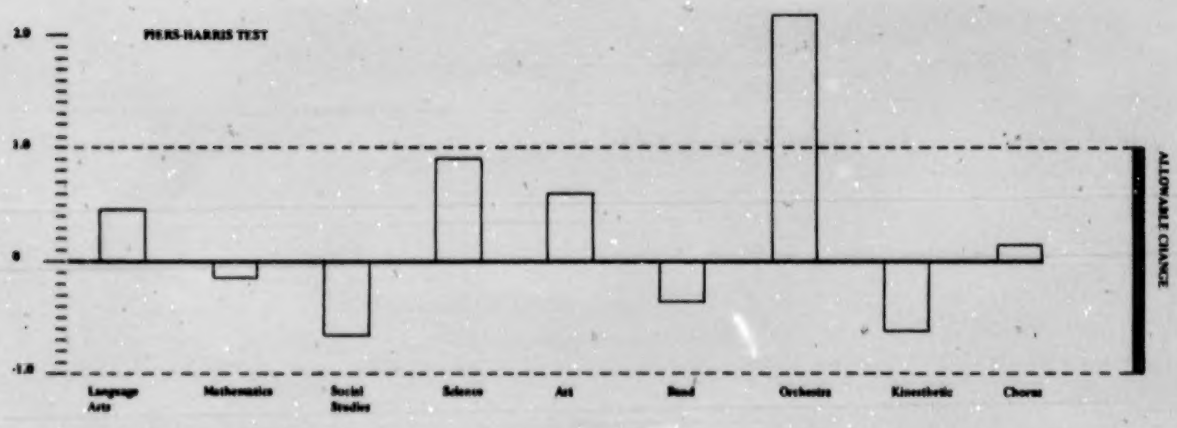
Program Option	Area of Exceptionality	
Interest Activity	Academic Only	83
	Arts Only	85
	Both	82
Curriculum Learning Center	Academic Only	85
	Arts Only	84
	Both	80
Enrichment	Academic Only	81
	Arts Only	83
	Both	85

FIGURE 13
CHANGE FROM PRE -TO-POST ON THE
PIERS-HARRIS CHILDREN'S SELF CONCEPT SCALE
BY PROGRAM OPTION
(GROUP MEANS ARE PRESENTED)



The Piers-Harris Tests of self-concept revealed no appreciable change during the year.

FIGURE 14
CHANGE FROM PRE-TO-POST ON THE
PIERS-HARRIS CHILDREN'S SELF CONCEPT TEST BY
AREA OF EXCEPTIONALITY
(GROUP MEANS ARE PRESENTED)



There is no apparent pattern in the changes in Self Concept when area of exceptionality is considered.

4. ATTITUDE TOWARD SCHOOL AND LEARNING

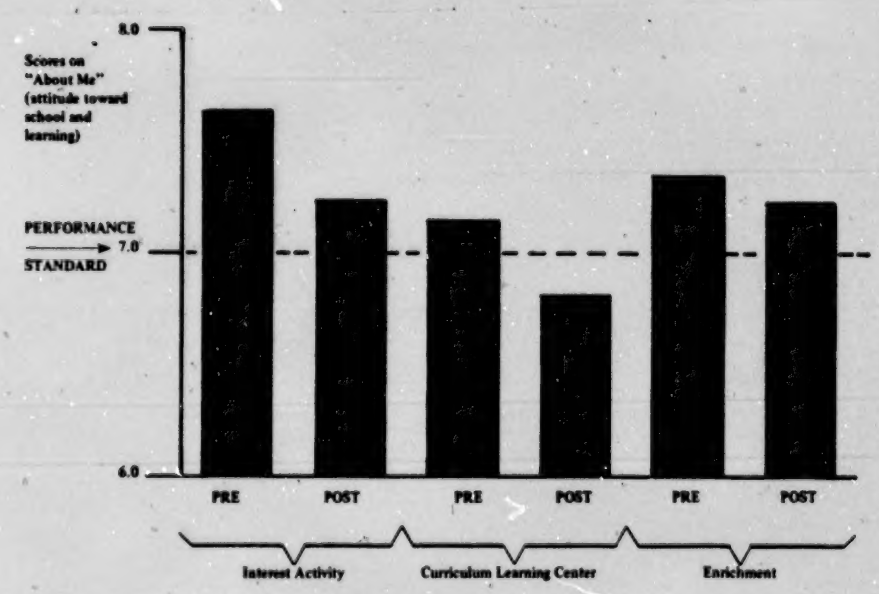
The program has an interest in monitoring attitude toward school and learning, since pupils with exceptionalities in the areas recognized by the program are subject to disenchantment with school and learning due to either boredom, peer pressure, or more complex problems.

In the absence of a suitable established measure, the evaluator constructed an instrument which would provide a rough index of attitude toward school and learning which would be practical and economic within the resource limitations of the program. The instrument is called *About Me* and consists of ten brief items; a full description of this instrument is contained in Appendix A. Scores on the measure range from 0 to 10, and high score indicates positive sentiments toward school and learning. On the basis of the validation studies during the development of the instrument and the data from year 1 (1974-1975), the following performance standard was set:

> *"By the end of the 197-1977 school year, all program options will have a group mean score of 7 or above on* About Me *(a brief checklist which assesses student attitudes toward learning)."*

The summary statistics for the measure are presented in Figure 15. The data indicate a general decline on the measure and that the CLC option failed to meet the performance standard.

FIGURE 15
PRE- AND POST SCORES ON
***ABOUT ME* BY PROGRAM OPTION**
(GROUP MEANS PRESENTED)

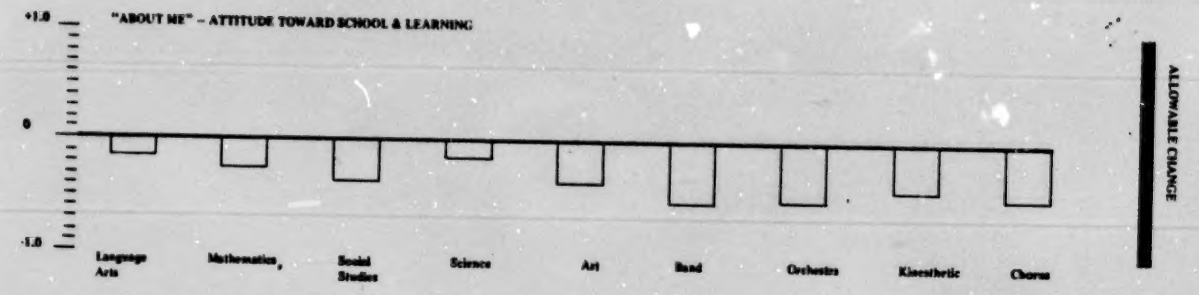


The Analysis of Variance confirmed these trends:

- *Trials* (p LT .05): There was no overall net decrease in the *About Me* scores.
- *Groups by Trials* (p LT .05): The CLC group experienced greater losses than the other options.

Figure 16 (see next page) shows that the decreases were spread uniformly across the nine areas of exceptionality which are recognized by the program. The data indicate that the program is faced with a problem of declining student attitudes toward school and learning. While these data do not indicate major declines during Year 3, they are part of a three-year decline. (This is discussed in greater detail in SECTION FIVE.)

FIGURE 16
CHANGE FROM PRE-TO-POST ON THE
***ABOUT ME* INSTRUMENT**
BY AREA OF EXCEPTIONALITY
(GROUP MEANS PRESENTED)



The trend toward less positive sentiments toward school and learning across all areas of exceptionality.

5. OVERALL VIEW OF THE STUDENT TEST DATA

The program set performance standards for thirteen tests and subtests. For the three program options which comprise the program there are a total of (3 x 13 =) 39 possible comparisons between program performance and the standards. Table 3 presents the results of these comparisons using these classifications:

- *PASS:* The option met or exceeded the standard.
- *CLOSE:* The option did not meet the standard, but was within three percent of it.
- *FAIL:* The option did not meet the standard and was not close to it.

> The reader should note that this analysis assumes and equal weight for all comparisons. In fact, the academic achievement and creativity tests might be considered by some to be more important than other measures.

For this data, a "pass/fail ratio" was computed for each option by dividing the sum of the "pass" and "close" by the number of "fails."

TABLE 3
OVERALL COMPARISON OF THE THREE PROGRAM OPTIONS WITH THE PERFORMANCE STANDARDS SET FOR THE FIVE STUDENT TESTING INSTRUMENTS AND THEIR SUBSCALES

	PROGRAM OPTION		
	Interest Activity	Curriculum Learning Center	Enrichment
SRA Composite	Pass	Pass	Pass
Torrance Fluency	Fail	Pass	Pass
Torrance Flexibility	Close	Fail	Close
Torrance Originality	Fail	Close	Pass
Torrance Elaboration	Fail	Pass	Pass
FIRO-BC I-E	Pass	Pass	Pass
FIRO-BC I-W	Pass	Pass	Pass
FIRO-BC C-E	Pass	Pass	Close
FIRO-BC C-W	Fail	Fail	Fail
FIRO-BC A-E	Pass	Pass	Pass
FIRO-BC A-W	Pass	Pass	Pass
Piers-Harris	Pass	Pass	Pass
About Me	Pass	Fail	Pass
Total "Pass"	8	9	10
Total "Close"	1	1	2
Total "Fail"	4	3	1
Pass/Fail Ration	2.25	3.33	12.00

The data indicate that all three program options were performing very well relative to the standard. The Enrichment option had the highest pass/fail ratio, the CLC was second and the Interest Activity was third. The basic problems detected by the evaluation study were in the areas of creativity, attitude toward school, and in some aspects of social relations. However, these problems are counterbalanced by strong gains in academic achievement and stable self-concept. As has been found in previous years, the student test data show encouraging results, but show room for considerable improvement.

SECTION TWO
ANALYSIS OF DATA FROM THE SURVEY OF PARENTS

For three years, the Program for the Gifted and Talented has been seeking the views, opinions and perceptions of the parents of children served by the program. This information is extremely important to the evaluation study because it provides an alternative perspective for the interpretation of the student testing data. The results from the parent survey are extremely important because it represents the observation of those who know the child best–the parents.

1. METHODOLOGY

The survey of parents was a direct replication of the studies conducted during Year 1 (1974-1975) and Year 2 (1975-1976). The questionnaire has remained the same for all three years; a sample copy of the instrument is included in Appendix D.

A questionnaire package was distributed to children in school who were instructed to bring them home to their parents; this package included:

- A *cover letter* from the Assistant Superintendent for Instruction which requested participation in the study and explained the survey's purpose.
- The *Parent Survey Questionnaire* which is self-administering, containing its own directions.
- A *post-paid return envelope* which the respondent was to use to mail the completed questionnaire directly to the evaluator.

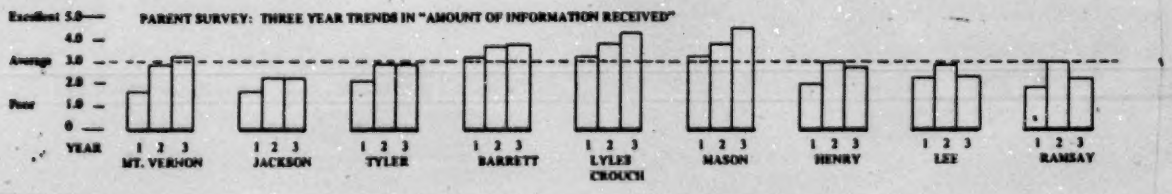
The respondent was specifically cautioned not to place his or her name on the form, thus preserving the anonymity and confidentiality of the respondents within the study. The forms were logged upon receipt and coded for keypunching by the evaluator's staff. The data was keypunched subject to 100% key verification by a firm specializing in this service. The data were analyzed on the CDC 6400 machine at the University of Virginia Computing Center.

The results from this study are presented in Figures 17 through 22, comparing results from all three years. In general, parent participation to the program was quite favorable.

2. INFORMATION RECEIVED ABOUT THE PROGRAM

During the first year, parents reported that they had received little of no information of the program. Accordingly, the program staff undertook a series of information dissemination activities such as the preparation of materials for distribution to parents, the encouragement of parent-teacher conferences and the holding of evening meetings. As shown in Figure 17, below, these activities have produced a gradually increasing trend in the opinions of parents about the amount of information which they had received about the program. The sole exceptions are the schools in the Enrichment option which showed an increase in Year 2 and a decrease in Year 3.

FIGURE 17
PARENT SURVEY: THREE YEAR TRENDS
IN "AMOUNT OF INFORMATION RECEIVED"

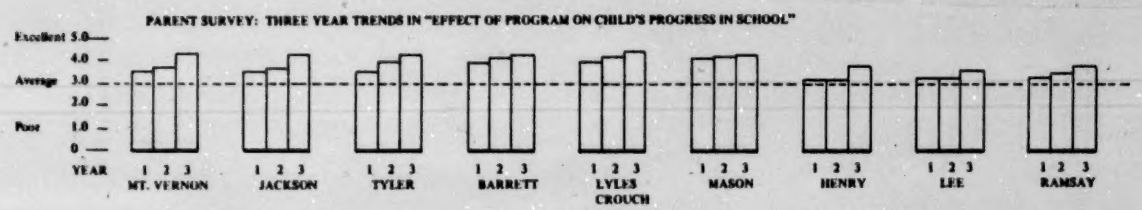


The comments offered by parents in Year 3 continued to reflect a desire for more detailed and more frequent evaluation of their child's progress within the program.

3. RATING OF THE CHILD'S PROGRESS IN SCHOOL

During previous years, parents were favorable to the effects of the program on the performance of their children in school. As shown in Figure 18, below, their ratings of the program on this dimension have grown more favorable.

FIGURE 18
PARENT SURVEY: THREE YEAR TRENDS
IN "EFFECT OF PROGRAM ON CHILD'S PROGRESS IN SCHOOL"

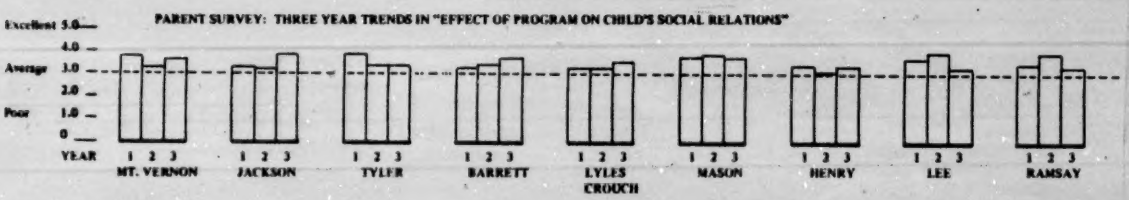


These results show that the parents are quite satisfied with the academic progress of their children. These data are reasonably consistent with the three year trends in the SRA data as discussed in Section Four. The Curriculum Learning Center enjoys the most favorable opinion of the parents, although all program options have met with above average ratings.

4. RATING OF THE EFFECT OF THE PROGRAM ON THE CHILD'S SOCIAL RELATIONS

A school-by-school summary of the three year trends in the parent rating of the program's effect on the child's social relations is presented in Figure 19, below.

FIGURE 19
PARENT SURVEY: THREE YEAR TRENDS
IN "EFFECT OF PROGRAM ON CHILD'S SOCIAL RELATIONS"

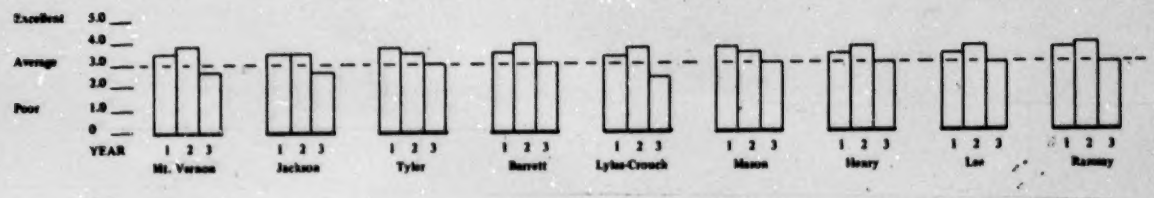


The data are uniform and show no visible pattern or consistent trend. The ratings cluster around "average" supporting the findings observed for the FIRO-BC data. These data are consistent with the hypothesis that the program has little or no effect on the social relations of the children.

5. RATING OF THE EFFECT OF THE PROGRAM ON THE CHILD'S CREATIVITY

Figure 20 (see next page) shows the three year trends in the parents' rating of the effect of the program on the creativity of their child. These data show a marked decline in the ratings in every school from above average to near or below average. These data are consistent with the findings from the Torrance Tests of Creative Thinking as discussed in Sections One and Three.

FIGURE 20
PARENT SURVEY: THREE YEAR TRENDS
IN "EFFECT OF PROGRAM ON CHILD'S CREATIVITY"

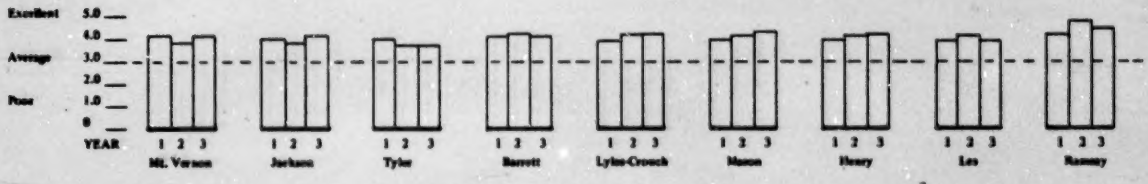


These data underscore the conclusion that the program is having problems in the area of the development of creativity.

6. RATING THE EFFECT OF THE PROGRAM ON THE CHILD'S SELF-CONCEPT

As shown in Figure 21, below, the ratings of self-concept are above average and relatively consistent.

FIGURE 21
PARENT SURVEY: THREE YEAR TRENDS
IN "EFFECT OF PROGRAM ON CHILD'S SELF-CONCEPT"

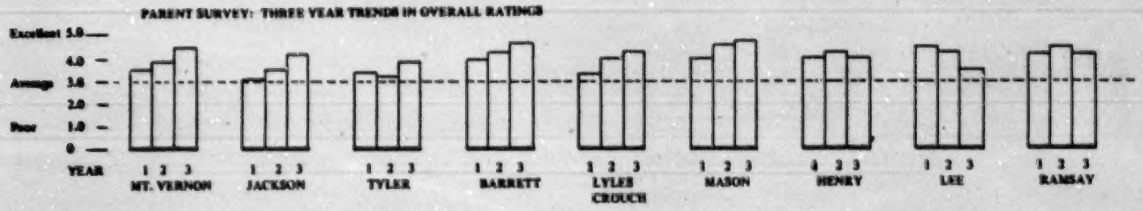


The data are consistent with the Piers-Harris results reported above, and support the notion that the children in the program have a well-developed self-concept which is affected very little by the program.

7. OVERALL RATING

The parents were asked to rate the overall performance of the program on a five-point scale ranging from "poor" to "excellent." The results from this item are presented in Figure 22, below.

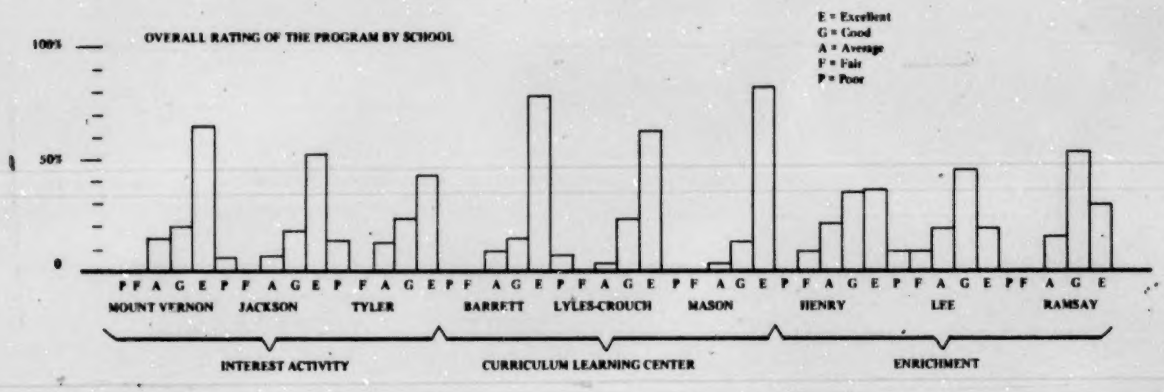
FIGURE 22
PARENT SURVEY: THREE YEAR TRENDS
IN PARENT OVERALL RATING



The results show a three year trend towards increasingly positive ratings for the Interest Activity and Curriculum Learning Center options. However, the data show either no change or decline in the ratings for the Enrichment option. Of particular concern is Lee School where the ratings show a progressive decline.

Table 23, below, illustrates the Year 3 data more clearly, showing the percentage of respondents in each category at each school.

FIGURE 23
YEAR 3 DATA
OVERALL RATING OF THE PROGRAM BY SCHOOL

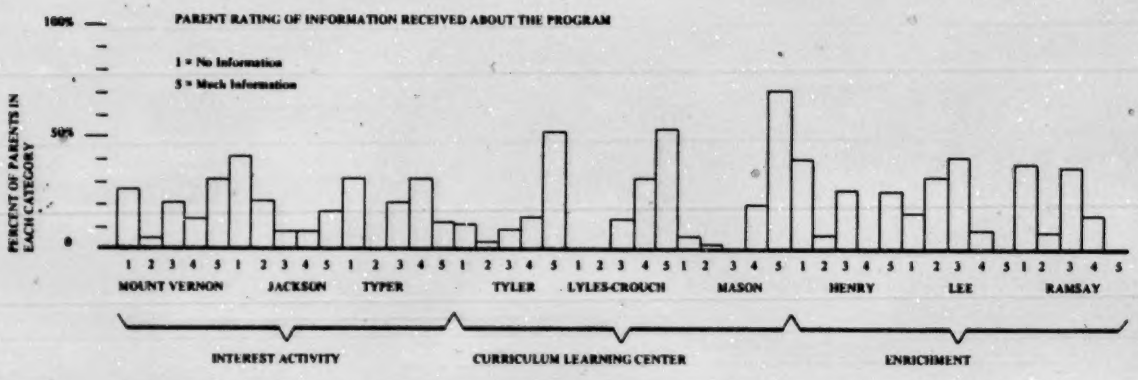


Thus, there appears to be a clear note of dissatisfaction with the Enrichment option being sounded by the parents.

8. SUMMARY FOR THE PARENT SURVEY

In the third year of the survey of parents, several trends were observed which supported the hypothesis that the program, *in general*, was improving. Parents in all school involved believed that the program was beneficial to their child's progress in school, giving more improved reports in each of the three years. Similarly, the parent data supports the notion that the program had little or no effect on the social relations or self-concept of the pupils, consistent with the program's design.

However, two unfavorable results were noted. First, parents uniformly supported the notion that creativity had dropped from Year 2 to Year 3 (see figure 20). This is corroborated by the Torrance data discussed in Section One. Second, Parents of pupils in the three Enrichment schools registered a striking decline in approval for the program.



Parents from CLC schools felt that they had received much information about the program, while those from Interest Activity and Enrichment schools were much less satisfied with the information which they had received.

SECTION THREE
ANALYSIS OF TEACHER SURVEY DATA

During Year 2 (1975-1976) a survey of regular classroom teachers was conducted to determine their perceptions of the Program for the Gifted and Talented. There are two basic principles underlying the survey of teachers:

- To obtain an additional perspective on the program from skilled professional observers who are close to the program.
- To investigate charges made by some parents to the effect that the regular classroom teachers are not supportive of the program.

During Year 3 (1976-1977) the survey was replicated using the same procedure as used in Year 2.

1. METHODOLOGY

The subjects for the study were all regular teachers who have pupils from the Program for the Gifted and Talented in their classes. The questionnaire used in the Year 2 study was employed without changes; a copy of this instrument is presented in Appendix D. Questionnaire packages were distributed to individual teachers by the principals in each school; each package contained the following:

- A cover letter signed by the Assistant Superintendent for Instruction which explained the purpose of the study.
- The questionnaire (which contains its own directions).
- A post-paid return envelope.

The subject completed the questionnaire at his/her leisure. The instructions specified that the respondent was not to place his or her name on the form, thus preserving the confidentiality of response. The completed questionnaires were mailed to the evaluator's offices where they were coded for keypunching. These data were punched by a commercial firm subject to 100% key verification. The analysis of the data was performed on the CDC 6400 machine at the University of Virginia Computing Center. The results of this analysis are presented in the following subsections.

2. INFORMATION RECEIVED ABOUT THE PROGRAM

Teachers were asked to rate the amount of information about the program which they had received from both the Gifted and Talented Program staff and from their own school principals. The data from this item are presented in Figures 24 and 25, below.

FIGURE 24
TWO YEAR TRENDS IN RATINGS BY TEACHERS OF THE AMOUNT OF INFORMATION RECEIVED ABOUT THE PROGRAM FROM G & T PROGRAM STAFF

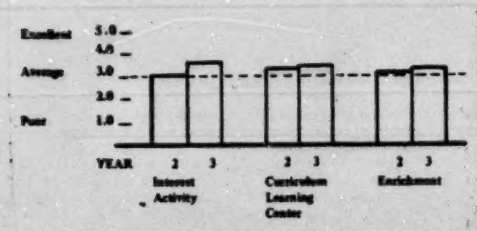
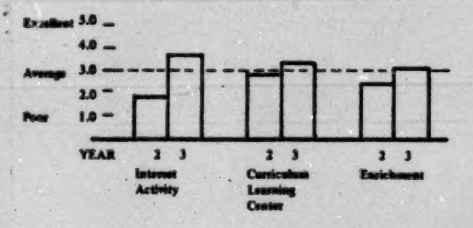


FIGURE 25
TWO YEAR TRENDS IN RATINGS BY TEACHERS OF THE AMOUNT OF INFORMATION RECEIVED ABOUT THE PROGRAM FROM PRINCIPALS

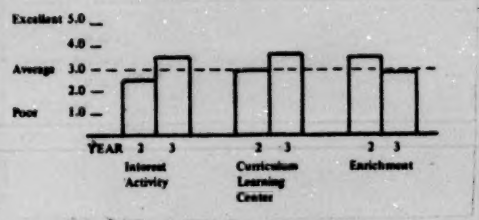


The data show a trend toward increased information about the program being received by the regular classroom teachers. Of particular note (Figure 25) is the increased amount of information being received from school principals.

3. CONTACT WITH THE PROGRAM

Teachers were asked to rate the extent to which they had experienced professional contact with the staff of the Program for the Gifted and Talented. The two year trends in these ratings are presented in Figure 26, below.

FIGURE 26
TWO YEAR TRENDS IN RATINGS BY TEACHERS OF THE AMOUNT OF PROFESSIONAL CONTACT WITH THE GIFTED AND TALENTED PROGRAM STAFF

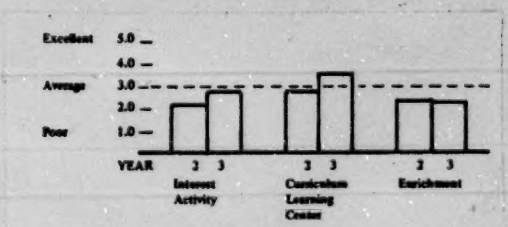


The data show increases in professional contact to reasonable levels in both the Interest Activity and Curriculum Learning Center options. However, professional contact decreased in the Enrichment option. This is especially noteworthy since the Enrichment option is predicated on continuous and direct communication between the Helping Enrichment Teacher and the regular classroom staff.

4. TRAINING TO WORK WITH THE GIFTED AND TALENTED PROGRAM

The teachers were asked to assess the adequacy of their training to work with the program. During Year 1, the teachers were not enthusiastic about the training. Accordingly, the program management took steps to improve the training, although the program design calls for only a small amount of time to be spent in this activity.

FIGURE 27
TWO YEAR TRENDS IN RATINGS BY TEACHERS OF THE ADEQUACY OF TRAINING TO WORK WITH THE GIFTED AND TALENTED PROGRAM



As shown in Figure 27, above, both the IA and CLC options showed more positive assessment of training in Year 3. However, teachers in the Enrichment option (where coordination between the teacher and G & T program staff is essential) registered a less favorable opinion of the training in Year 3. Only the CLC option rated their training as "average," the remaining two options being "less than average."

These data indicate that the program should devote some additional attention to training of the regular classroom teachers.

5. CROSS-FERTILIZATION OF IDEAS

The intent of the Program for the Gifted add Talented is that the activities of the gifted pupils will benefit, enrich, and enhance the instruction of pupils who are not in the program. Among the means intended to be used in this enhancement would be a cross-fertilization of ideas between the program and "regular" classrooms. Accordingly, teachers were asked to rate two aspects of the program.

- The extent to which they had received feedback from the program about the progress of individual pupils.
- The extent to which ideas, concepts, or materials developed in the G & T program had been transferred to the regular classroom.

The data from these items are shown in Figures 28 and 29, below.

FIGURE 28
TWO YEAR TRENDS IN RATINGS BY TEACHERS OF THE EXTENT TO WHICH THERE HAS BEEN AN EXCHANGE OF IDEAS AND MATERIALS BETWEEN THE GIFTED PROGRAM AND THE REGULAR CLASSROOM

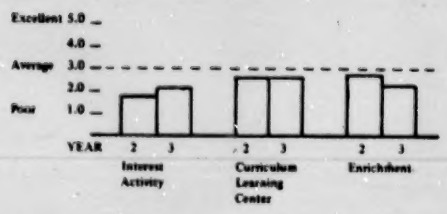
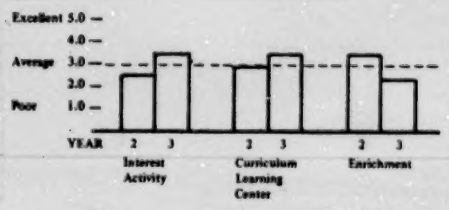


FIGURE 29
TWO YEAR TRENDS IN RATINGS BY TEACHERS OF THE EXTENT TO WHICH THEY HAVE RECEIVED FEEDBACK ABOUT THE PROGRESS OF PUPILS IN THE GIFTED AND TALENTED PROGRAM



The data show an increase in the amount of feedback received in the IA and CLC options to "acceptable" levels, while the Enrichment option has dropped from acceptable to less than acceptable levels.

The exchange of ideas was rated less than acceptable in all program options. However, the Enrichment option (Figure 28) showed a decline in this area, while the other options showed an increase or remained the same.

The data indicate that the program's intentions of enriching the regular classroom have not yet been met.

6. ATTITUDES TOWARD DIFFERENTIATED EDUCATION

In response to parent complaints about supposed "hostility" of the regular classroom teachers toward the program, the teacher survey has sought to investigate the attitude of teachers toward differentiated education of both the handicapped and the gifted. These data are shown in Figures 30 and 31, below.

FIGURE 30
TWO YEAR TRENDS IN TEACHER RATINGS OF THE BENEFITS OF DIFFERENTIATED EDUCATION FOR THE HANDICAPPED

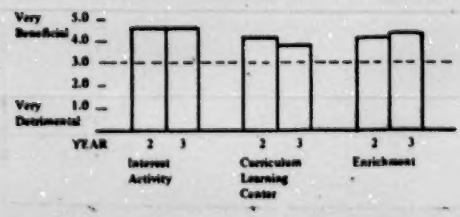
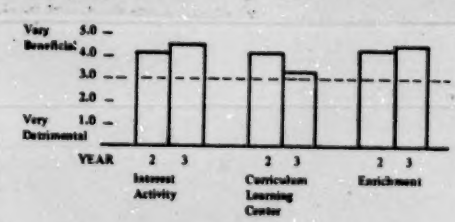


FIGURE 31
TWO YEAR TRENDS IN TEACHER RATINGS OF THE BENEFITS OF DIFFERENTIATED EDUCATION FOR THE GIFTED AND TALENTED



The data indicate that the teachers have a very positive attitude toward differentiated education in general. Attitudes toward the differentiated education of the handicapped are slightly higher than that of the gifted. Further, the teachers at the CLC had a lessening of their attitudes in both areas from Year 2 to Year 3.

The data do not support the allegations that the teachers are "hostile" to the program.

7. EFFECT OF THE GIFTED & TALENTED PROGRAM ON CLASSROOM ROUTINE

Because the program involves the movement of children to and from their regular classroom there is the potential for disruption to the learning environment of pupils who are not in the program. The survey of teachers contained two items which assess the teachers' perception of the amount of disruption caused by the comings and goings of pupils in the academic and arts activities (the schedules of the two are dissimilar). The data from these items are presented in Figures 32 and 33, below.

FIGURE 32
TWO YEAR TRENDS IN TEACHER RATINGS OF DISRUPTION IN CLASSROOM ROUTINE DUE TO ACADEMIC PUPILS IN THE GIFTED PROGRAM

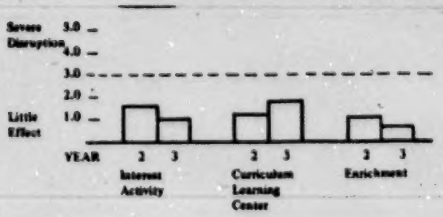
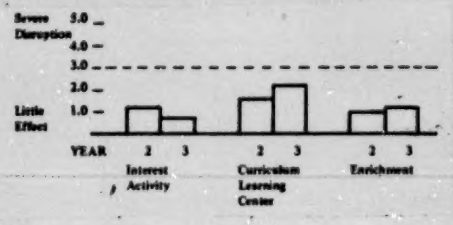


FIGURE 33
TWO YEAR TRENDS IN TEACHER RATINGS OF DISRUPTION IN CLASSROOM ROUTINE DUE TO ARTS PUPILS IN THE GIFTED PROGRAM



The data show that the disruption in the classroom routine is minimal. However, in the CLC option, teachers noted an increase in disruption, while a decrease was noted in the Interest Activity and Enrichment options.

8. OBSERVATION OF ELITISM

Of extreme concern to the study is the potential for the development of "elitist" attitudes in the pupils. The Program for the Gifted and Talented recognizes its role in enhancing the skills and talents of its pupils, but is also concerned that normal social development will take place. The "gifted" child should recognize that he or she is an interdependent member of a complex society. The program is concerned that the following social pathologies be avoided:

- Pupils in the program should manifest attitudes of *superiority* -rather, they should recognize that they must live in a pluralistic society composed of persons with all levels of skills and abilities.
- Pupils who are not involved with the program should not develop attitudes of *inferiority* as a result of the action of the pupils or staff of the gifted program.

The survey of teachers inquired into each of the two areas. The data from this area of concern are presented in Figures 34 and 35 (see next page).

The data show that teachers were concerned about both forms of "elitism." In the Interest Activity and Enrichment options, the teachers indicated that a drop in the incidence of these problems had occurred during the period between Year 2 and Year 3. However, the teachers in the Curriculum Learning Center schools expressed the opinion that the incidence of both "superiority" and "inferiority" had increased.

Of the two problem areas, teachers rated attitudes of "superiority" among pupils in the program as a more serious problem than "inferiority" among pupils not in the program.

The teacher rating data are not corroborated by the student test data which show both self-concept and social relations to be quite normal with the exception that the pupils in the G & T program manifest an unusual amount of idependence (as measured by the FIRO-BC "wanted control" subscale). Whether or not the teachers are misperceiving "independence" for attitudes of "superiority" cannot be determined from the data.

FIGURE 34
TWO YEAR TRENDS IN TEACHER RATINGS OF THE DEGREE TO WHICH PUPILS IN THE GIFTED AND TALENTED PROGRAM EXHIBIT ATTITUDES OF SUPERIORITY

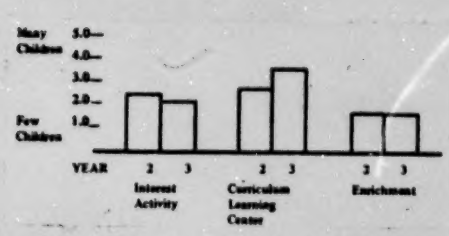
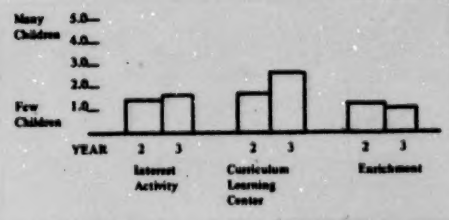


FIGURE 35
TWO YEAR TRENDS IN TEACHER RATINGS OF THE DEGREE TO WHICH PUPILS NOT IN THE GIFTED AND TALENTED PROGRAM EXHIBIT ATTITUDES OF INFERIORITY

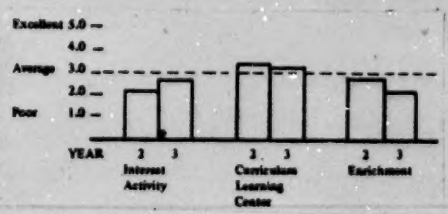


On balance, the potential for the development of social pathologies in the form of "elitism" are inherent in any program which identifies and provides differentiated education for the gifted and talented. While the student data suggest that this is not a problem within the Alexandria program, the reports of the teachers cannot be overlooked. The program should take additional steps--*particularly in the Curriculum Learning Center schools*--to detect and counter the development of "elitist" trends in pupils.

9. EFFECTS OF THE PROGRAM ON ACADEMIC ACHIEVEMENT

Teachers were asked to rate the effect of the G & T program on the overall academic achievement of the pupils; the data from these ratings are presented in Figure 36, below.

FIGURE 36
TWO YEAR TRENDS IN TEACHER RATINGS OF THE EFFECT OF THE PROGRAM ON THE ACADEMIC ACHIEVEMENT OF PUPILS

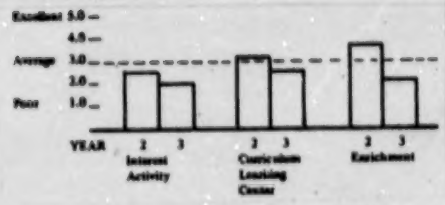


These data are in rough conformance with the data from the SRA achievement tests cited previously in Section One, in that the CLC schools obtained the highest ratings. However, for all options combined, the teachers gave the program a less than average rating with respect to academic achievement. This is in contradiction with the results presented for the student test data, the parent survey, and analysis of three year trends and the comparison group study. A possible cause of these "less than favorable" ratings may be unclear standards for the performance of pupils. A correlation was computed between the rating of the amount of information received about the program and the rating of the program's effect. The observed value of r_{xy} was +0.57 (which is significant at the .05 level). Thus, teachers who said they knew little of the program tended to give low ratings of program effect on academic achievement and the higher ratings came from teachers who reported greater knowledge of the program.

10. EFFECT OF THE PROGRAM ON CREATIVITY

Teachers were asked to assess the effects of the program in developing creativity in the pupils. The data from response to this item are presented in Figure 37 (see next page).

FIGURE 37
TWO YEAR TRENDS IN TEACHER RATINGS
OF THE EFFECT OF THE PROGRAM ON
THE CREATIVITY OF PUPILS



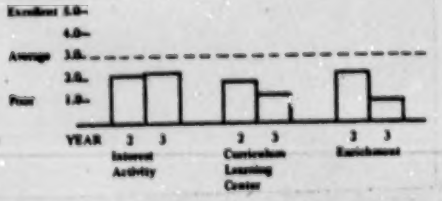
The data show a decline in ratings of effect on creativity across all program options from Year 2 to Year 3. Further, the ratings have uniformly declined to less than acceptable levels. This finding is *supported* by the other sources of data. Correlation between ratings of information received and program effect on creativity was -0.36 (which is marginally significant at the 10% level). This indicates that those who said that they knew the most about the program gave lower ratings of its effect on creativity than those who said that they knew the least.

These data confirm the other sources of information in indicating that the program is experiencing difficulties in the development of creativity in its pupils.

11. EFFECT ON SOCIAL RELATIONS

Teacher ratings of the effect of the program on the social relations of pupils were not favorable to the program, as shown in Figure 38, below.

FIGURE 38
TWO YEAR TREND IN TEACHER RATINGS
OF THE EFFECT OF THE PROGRAM ON
THE SOCIAL RELATIONS OF PUPILS



The ratings were lower than average during Year 2 and showed an overall decline during Year 3. These ratings were not correlated with information received about the program ($r = -0.12$) but were significantly correlated with observations of elitism in the form of "superiority" on the part of the G & T pupils ($r = -0.49$). Thus, the poor ratings of the program in the area of social relations seem to be closely related to feelings that the program is fostering "elitism."

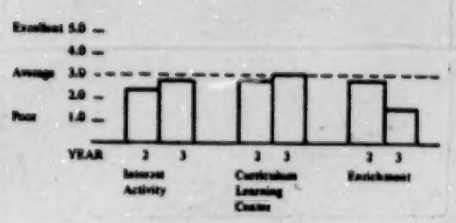
These unfavorable ratings by the teachers are, however, not supported by the other sources of data.

12. EFFECT ON SELF-CONCEPT

Teachers were more favorable to the program in terms of its effects on the self-concept of pupils, as shown in Figure 39 (see next page).

A major decline in effect on self concept from Year 2 to Year 3 was noted in the Enrichment option, while moderate increases were observed in the Interest Activity and Curriculum Learning Center options.

FIGURE 39
TWO YEAR TRENDS IN TEACHER RATINGS
OF THE EFFECT OF THE PROGRAM ON
THE SELF CONCEPT OF GIFTED PUPILS

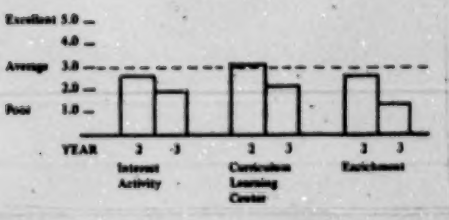


These ratings are not consistent with patterns in the ratings of parents or with the Piers-Harris test data, nor are they correlated to any degree with information received about the program ($r = 0.12$) or observations of elitism ($r = 0.04$). Approximately 25 percent of the respondents said that they had seen attitudes of "superiority" in many G & T pupils, but gave the program an "average" rating in terms of the development of self-concept. The data indicate that the question used on the survey instrument may have communicated multiple meanings of "self-concept," in that some teachers may be indicating that attidues of "superiority" are "average" or to be expected from gifted pupils, while others are indicating that self-concept has developed "normally" in these pupils, as compared to others in their age group. This conclusion would imply that the results from this item are of limited utility to the evaluation study other than serving as a guide to the redesign of the survey questionnaire.

13. EFFECT ON ATTITUDE TOWARD SCHOOL AND LEARNING

The teacher ratings of the program's effects on pupil attitudes toward learning confirmed results found on the "About Me" instrument, as shown in Figure 40, below.

FIGURE 40
TWO YEAR TRENDS IN TEACHER RATINGS
OF THE EFFECT OF THE PROGRAM ON
THE ATTITUDES OF PUPILS TOWARD
SCHOOL AND LEARNING



The data confirm a downward trend in attitudes toward school and learning on the part of the G & T pupils. Further, these ratings are negatively correlated with information received about the program ($r = -0.41$) indicating that those who said that they knew the most about the program gave the program the poorest ratings in Year 3.

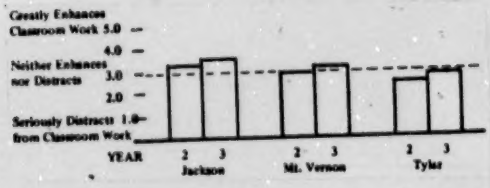
These data confirm the indications from the student testing which show a deterioration in the attitudes toward school.

NOTE: The following three sections represent special analyses of the three individual program options based on special questions prepared for the respondents (i. e., the subjects in each option received a separate questionnaire).

14. SPECIAL ANALYSIS OF THE INTEREST ACTIVITY OPTION

Among the program intentions is that the goal that the various projects conduct within the Interest Activity option should enhance the activity within the regular classroom. Teachers within the IA option were asked to rate the extent to which such special activities had enahced their classroom. The two year trends in the data are shown in Figure 41, below.

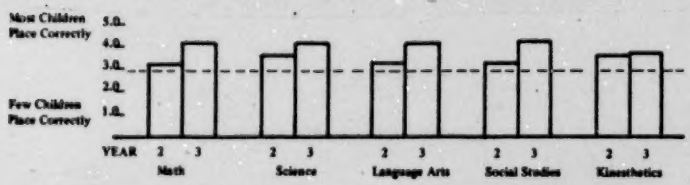
FIGURE 41
TWO YEAR TRENDS IN THE RATINGS OF TEACHERS
AT INTEREST ACTIVITY SCHOOLS ABOUT
THE ENHANCEMENT OF CLASSROOM WORK



The data show that the teachers feel that the program has not, ingeneral, enhanced the regular classroom although it has not detracted from it, either.

As a partial check on the selection criteria, teachers were asked to rate the adequacy of placement of pupils in the various options. The data from these ratings are shown in Figure 42, below.

FIGURE 42
TWO YEAR TRENDS IN THE RATINGS OF TEACHERS
IN INTEREST ACTIVITY SCHOOLS ABOUT
THE CORRECTNESS OF PLACEMENT OF PUPILS
IN THE GIFTED AND TALENTED PROGRAM



The data show that the teachers have come to feel much more positively about the selection criteria, giving extremely favorable ratings.

A frequent parent complaint during the first two years was that the child spent learge amounts of time on activities, but received little credit for the work in their grades. Thus, the survey of the classroom teachers was designed to inquire into the amount of input that the Interest Activity teacher had in the determination of the pupil's final grade. The results from this analysis are presented in Table 5 (see next page).

The data reflect a substantial adjustment in the grading process in which the IA teacher has come to play a much more dominant role in the grading process, thus assuring that the IA pupil receives full credit for work in the subject areas to which he or she is assigned.

These special data, on the whole, are quite favorable to the Interest Activity schools.

TABLE 5
PARTICIPATION OF THE INTEREST ACTIVITY TEACHER
IN THE PROCESS OF PUPIL EVALUATION
(TWO YEAR TRENDS)

	JACKSON		MT. VERNON		TYLER	
	year 2	year 3	year 2	year 3	year 2	year 3
IA Teacher Makes Suggestion for Pupil Eval	9	2	6	1	7	0
Case-by-Case Joint Review of Pupil Eval.	2	3	1	2	1	3
IA Teacher is Responsible for Pupil Eval.	1	6	1	4	0	3
Other	3	3	3	3	1	2

15. SPECIAL ANALYSIS FOR CURRICULUM LEARNING CENTER SCHOOLS (CLC)

The CLC design places responsibility for the evaluation of pupil progress in the hands of the CLC teacher. This arrangement has the potential for reactivity or perceived threat on the part of the regular classroom teacher. Thus, the survey of teachers was designed to inquire into this area. The two year trends in these ratings are presented in Table 6, below.

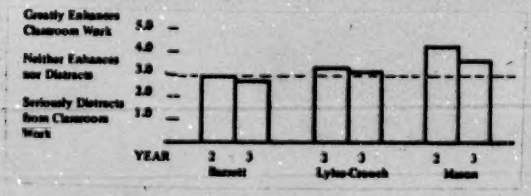
TABLE 6
TWO YEAR TRENDS IN THE ANALYSIS
OF PROBLEMS ASSOCIATED WITH THE
ASSIGNMENT OF GRADES BY THE CLC TEACHER

	BARRETT		LYLES-CROUCH		MASON	
	year 2	year 3	year 2	year 3	year 2	year 3
Problems Encountered	1	0	3	1	1	0
No Problems Encountered	5	6	7	9	4	4

The data show that reactivity to the grading arrangements has all but diminished in the period between the Year 2 and Year 3 surveys.

The intent of the program is for CLC activities to enhance the regular classroom environment. The extent to which such activities permeate into the regular classroom was studied from the view of the teachers. The data are presented in Figure 43, below.

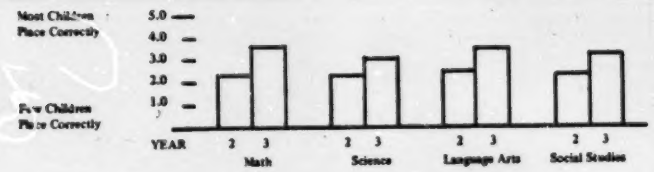
FIGURE 43
TWO YEAR TRENDS IN THE RATINGS OF TEACHERS
AT CURRICULUM LEARNING CENTER SCHOOLS
ABOUT THE EFFECT OF THE GIFTED & TALENTED PROGRAM
ON REGULAR CLASSROOM WORK



With the exception of George Mason School, the respondents indicated that the program neither enhanced nor distracted from the regular classroom work. In comparison with Figure 41, both the CLC and the IA options do not appear to have any meaningfully different effects on the enhancement of regular classroom activities.

The evaluation is also concerned with the process of selecting pupils into the four basic academic areas involved in the CLC (i. e., math, science, language arts, and social studies). Accordingly, teachers were asked to rate the adequacy of the selection process in terms of the number of pupils correctly placed. The data from these ratings are presented in Figure 44, below.

FIGURE 44
TWO YEAR TRENDS IN THE RATINGS OF TEACHERS IN CURRICULUM LEARNING CENTER SCHOOLS ABOUT THE CORRECTNESS OF PLACEMENT OF PUPILS IN THE GIFTED AND TALENTED PROGRAM



The data indicate that the regular classroom teachers have dramatically increased their support for the selection procedure in the interim between Years 2 and 3.

The CLC program has shown improvement in the relations between program staff and teachers as well as improvement in support for the selection procedures. However, it has failed to meet its goal of meaningfully enhancing the regular classroom environment.

16. SPECIAL ANALYSIS OF THE ENRICHMENT OPTION

Teachers at Henry, Lee and Ramsay schools were asked two questions about the enrichment program.

According to the program design, the Helping Enrichment Teacher (HET) is to spend X hours per week in the following program activities:

- Direct work with gifted pupils
- Individualization of pupil programs
- Evaluation of pupil progress
- Observation of pupils

Figure 45 presents a composite picture of the views of the regular classroom teachers as to the distribution of the HEP's time in an "average" week. The data are presented in Figure 45 (see next page).

The data indicate that the respondents feel that there has been an overall decrease in the amount of time spent by the HEP in the work with the pupils. There was a small increase at Henry School and a large decrease in time spent at Lee School. According to the teachers, the HEP spent the smallest amount of time working directly with pupils at Lee School, while spending the most time in observation there.

Among the tasks of the HEP is that of providing materials to the regular classroom teacher which will aid in the instruction of the gifted pupil. The program intends that these materials would benefit all pupils in addition to the gifted. Accordingly, the regular classroom teachers were asked to provide ratings of both:

- The amount of materials provided by the HEP
- The degree of enhancement of the regular classroom due to these materials.

As shown in Figure 47 (see next page), teachers indicated that both the amount of materials and the enhancement of the class decreased in a roughly parallel fashion.

The Enrichment option showed problems in both the time spent by the HEP in the classroom and in the amount of materials delivered to the regular teachers, with an apparant detriment to the enhancement of the class.

FIGURE 46
TWO YEAR TRENDS IN TEACHER RATINGS
OF THE TIME SPENT BY THE HELPING ENRICHMENT TEACHER
IN PROGRAM ACTIVITIES DURING AN "AVERAGE" WEEK

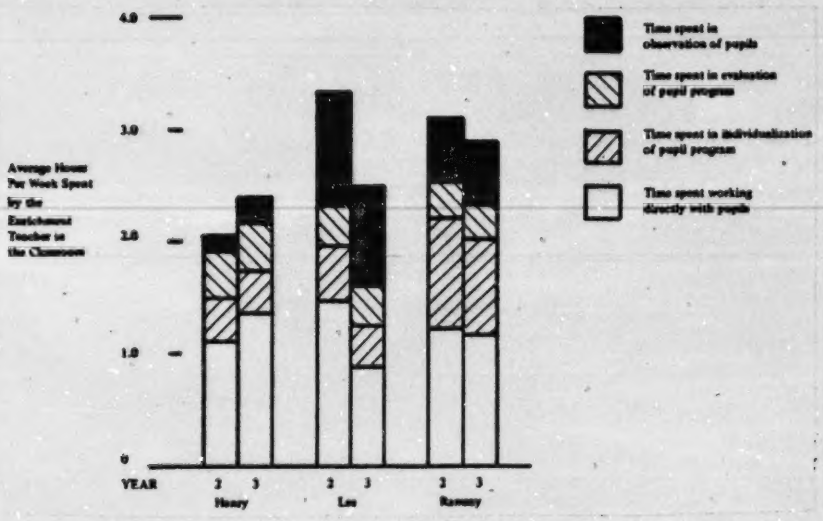
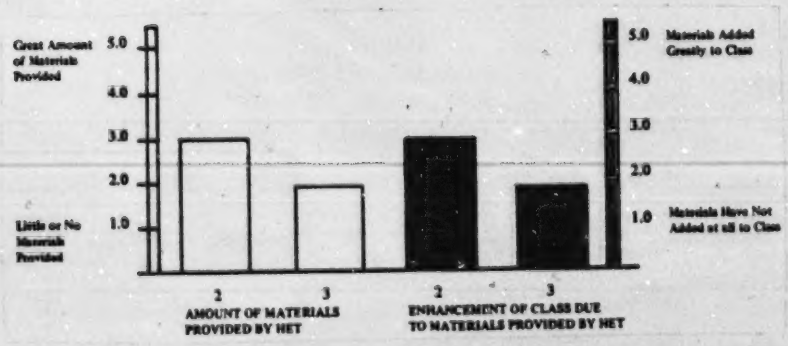


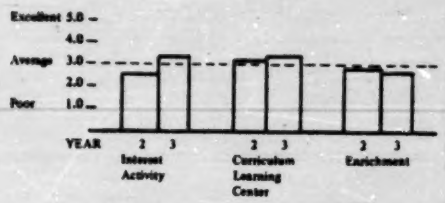
FIGURE 47
TWO YEAR TRENDS IN RATINGS BY CLASSROOM TEACHERS
OF THE ENRICHMENT OF THE CLASSROOM DUE TO MATERIALS
PROVIDED BY THE HELPING ENRICHMENT TEACHER (RIGHT SCALE)
AND THE AMOUNT OF MATERIALS (LEFT SCALE)



17. OVERALL RATINGS OF THE PROGRAM

All regular classroom teachers were asked to provide an overall rating of the program. The two year trends in these data are provided in Figure 48, below.

FIGURE 48
TWO YEAR TRENDS IN TEACHER RATINGS OF THE OVERALL PERFORMANCE OF THE PROGRAM FOR THE GIFTED AND TALENTED



The data show that on balance the teachers were only willing to assign an "average" rating to the performance of the program. Although ratings for the IA and CLC increased slightly from Year 2 to Year 3, and ratings for the Enrichment option decreased during the same period, there does not appear to be major differences in the ratings of overall performance attributable to program option.

SUMMARY FOR THE SURVEY OF TEACHERS

The second annual survey of regular classroom teachers found that the respondents were better informed about the program, receving information primarily from the G & T program staff, although during Year 3 the principals came to play an increasing role. Professional contact between teachers and professional staff generally increased and respondents had more favorable opinions about their training to work with the program.

Teachers gave only "average" and "less than average" ratings to both the amount of feedback received from the gifted program and the exchange of ideas between the program and the regular classroom. This indicates that teachers feel that the program's goal of enhancing all instruction through the diffusion of materials and ideas is not being met.

Teachers did, however, indicate that the program activities caused little disruption to the regular classroom activities. Thus, while the program had only a minimal effect in enhancing classroom routine, it apparently caused little disruption. Thus any enhancement at all must be regarded as a positive contribution.

Teachers had very positive attitudes toward the differentiated education of both the handicapped and the gifted. However, they reported a net increase in the presence of "elitism" as manifested in the form of pupils in the gifted program exhibiting attitudes of "superiority" and (to a lesser extent) pupils in the regular classrooms exhibiting attitudes of "inferiority." Although the teacher ratings are not supported by the test data, the problem of "elitism" should be carefully investigated by program management.

Teachers gave the program poor marks in the development of social relations, which was largely due to their perceptions of elitism. Teachers gave "average" ratings to the program's effects on self-concept, which, because of internal inconsistencies in the data are difficult to interpret.

Teachers gave the program only "average" ratings in the area of promoting academic achievement, which is not supported by either the parent or student data. However, the teachers confirmed trends in the other sources of data that there has been a decline in both creativity and attitude toward school and learning from Year 2 to Year 3.

The Interest Activity (IA) showed improvement in the amount of information communicated to teachers and the training of teachers to work with the program. Professional contact between teachers and G & T staff increased as did feedback about pupil progress in the program and cross-fertilization of ideas. Disruption of the regular classroom due to arts and academic pupils coming and going diminished somewhat.

Teachers came to feel more positive sentiments about differentiated education for the gifted and reported fewer instances of the G & T pupils exhibiting attitudes of "superiority."

Teachers in IA schools reported that the academic achievement and self-concept of gifted pupils had increased while creativity and attitudes toward learning had fallen off.

The program neither enhanced nor distracted from the regular classroom work.

Teachers came to feel much better about the selection and placement of pupils in the various activities.

Finally, a major shift was noted in that the IA teacher has assumed much more responsibility for grading pupils in the areas to which they are assigned.

The Curriculum Learning Center option was given more positive ratings in Year 3 for information about and training to work with the program. Professional contact between the program staff and regular classroom teachers increased as did feedback about the performance of G & T pupils.

Teachers reported that their attitude toward the differentiated education of the handicapped remained the same, while they reported less favorable attitudes toward differentiated education of the gifted. This was accompanied by reports of sharp increases in both forms of "elitism" in the CLC schools, as well as below average ratings of the effects of the program on social relations.

According to teachers the CLC option had a slightly better than average effect on academic achievement and self-concept. Teachers indicated that the program's effects on creativity had declined from Year 2 to Year 3, as had attitude toward school and learning.

The CLC program was assessed as neither enhancing nor distracting from the regular classroom work - although there was a slight increase in the amount of disruption to classroom routine due to the movement of arts and academic pupils.

Teachers came to be much more satisfied with the method of pupil selection and reactivity over grading arrangements had diminished.

The Enrichment option experienced severe difficulties. Teachers reported that information flow, feedback and professional contact had diminished from Year 2 to Year 3, even though the design of the Enrichment option requires extensive inter-relations between the classroom teacher and the Helping Enrichment Teacher (HET). Further, an anlysis of teacher perceptions of the time spent in individual activities by the HET indicated that from Year 2 to Year 3 an overall lower amount of effort was being expended.

The teachers reported that little of no "elitism" of either form had been found. However, they also indicated that the program's performance was poorer during Year 3 in all five criterion areas: academic achievement, creativity, social relations, self-concept, and attitude toward school and learning. The teachers felt that the amount of materials provided by the HEP had declined, as had the enhancement of the class due to these materials.

On the basis of these teacher ratings, the enrichment option requires some investigation by program management to assess their validity.

Overall, the teachers gave only "average" ratings to the program.

SECTION FOUR
ANALYSIS OF THREE YEAR TRENDS
IN STUDENT TEST DATA

The evaluation study has been a part of the Alexandria Program for the Gifted and Talented since its inception in the fall of 1974. Since the evaluation study has involved pre and post measures during each of the three years of program operation, there are now six data points for each of the instruments employed in the student testing program.

This report is the last of a series of three reports on the performance of the program during the period in which it was funded under Title IV-C, ESEA. Accordingly, this section provides a retrospective view of the three years of program operation.

This section looks at the past three years from two perspoctives:

- *Panel Data:* For each year, it is possible to compare the group means on each scale and subscale of the five instruments.

However, the panel data does not provide a comprehensive view of the impact of the program. The Alexandria school population, because of its proximity to Washington, D. C. is characterized by wide fluctuations in the enrollment, since pupils move into and out of the district at a much higher rate than other school systems.

In addition to this, the panel data is limited because pupils enter the program during the fourth grade and leave in the sixth grade. Thus, the population changes approximately one third every year. The panel data are, therefore, useful only in the comparison of the program as a "replication" of itself in each of the three years.

In order to provide a view of the cumulative effects of the program, the study also reports on:

- *Longitudinal Data:* The individual pupil records for all three years were searched to identify pupils who had been in the fourth grade in 1974 and who had complete data records for the three year sequence (a total of 97 such pupils were identified).

The longitudinal analysis provides a view of the development of pupils as they interact with the program on a sustained basis.

Accordingly, the following two subsections are devoted to a presentation of both the panel and longitudinal data.

SUBSECTION A: THREE YEAR PANEL DATA

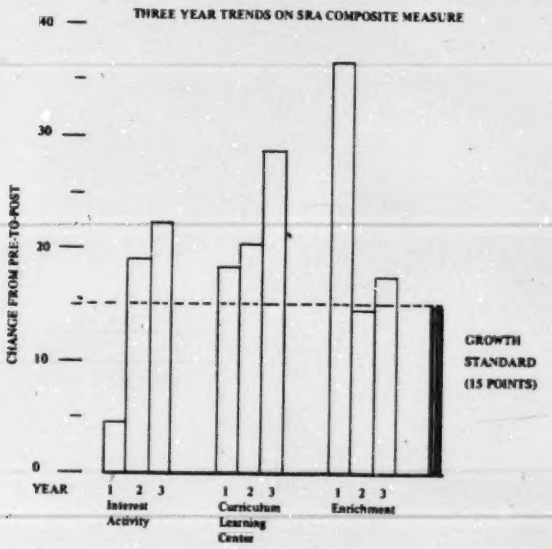
METHODOLOGY

The data shown below are drawn from reports issued in Year 1 (August 1975), Year Two (August 1976) and in Year 3 (provided in Section One). It is possible to provide three year comparisons for all measures except the Torrance Tests of Creative Thinking. During Year 1, the verbal form of the Torrance was given to pupils in academic areas, while the figural form was given to pupils in arts areas. Because of a substantial overlap in the assignments of pupils to both arts and academic areas, it is only possible to provide two year comparisons on the Torrance tests.

1. THREE YEAR TRENDS IN ACADEMIC ACHIEVEMENT

The comparison of the various program options across the three years of operation revealed that program exhibited consistently good performance. As shown in Figure 49, below, there were only two (of nine possible) instances in which the performance standard was not met. Both the Interest Activity (IA) and Curriculum Learning Center (CLC) options showed progressive improvement over the three years. The Enrichment option began with exceptional growth in the first year, but performance dropped off in the second and third years to levels only minimal consistence with the performance standard.

FIGURE 49
THREE YEAR TRENDS ON
THE SRA COMPOSITE MEASURE
(PANEL DATA)



As shown in Figure 50 (see next page) the effect of the program on reading suffered a general setback during Year 2. Although gains have been made since this, performance has not yet matched that observed in Year 1 for any of the program options.

A somewhat different picture is shown for the mathematics subtest. With the exception of the Enrichment option, performance in the third year substantially exceeds that in the first year. (See Figure 50, next page.)

Thus the panel data indicate that the program has met its goal of fostering academic achievement. Both the Interest Activity and CLC options have continued to improve in their impact on achievement, while the Enrichment option has failed to improve over its first year performance. Among the basic skills, the program appears to have a better effect on mathematics than upon reading.

Figure 50
THREE YEAR TRENDS ON THE SRA READING SUBTESTS

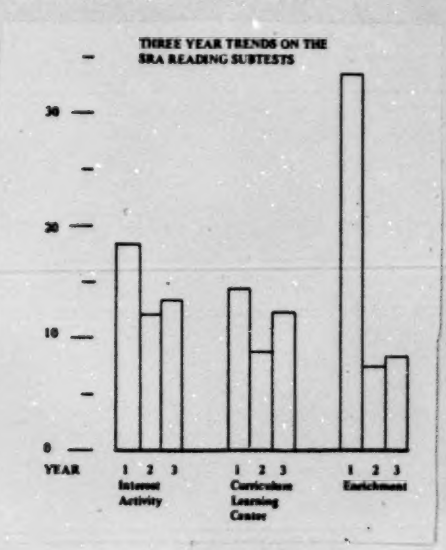
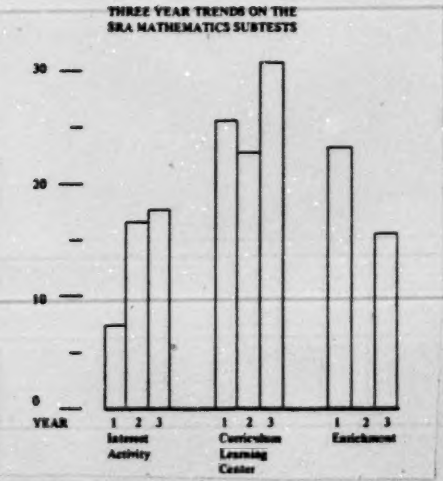


FIGURE 51
THREE YEAR TRENDS ON THE SRA MATHEMATICS SUBTESTS

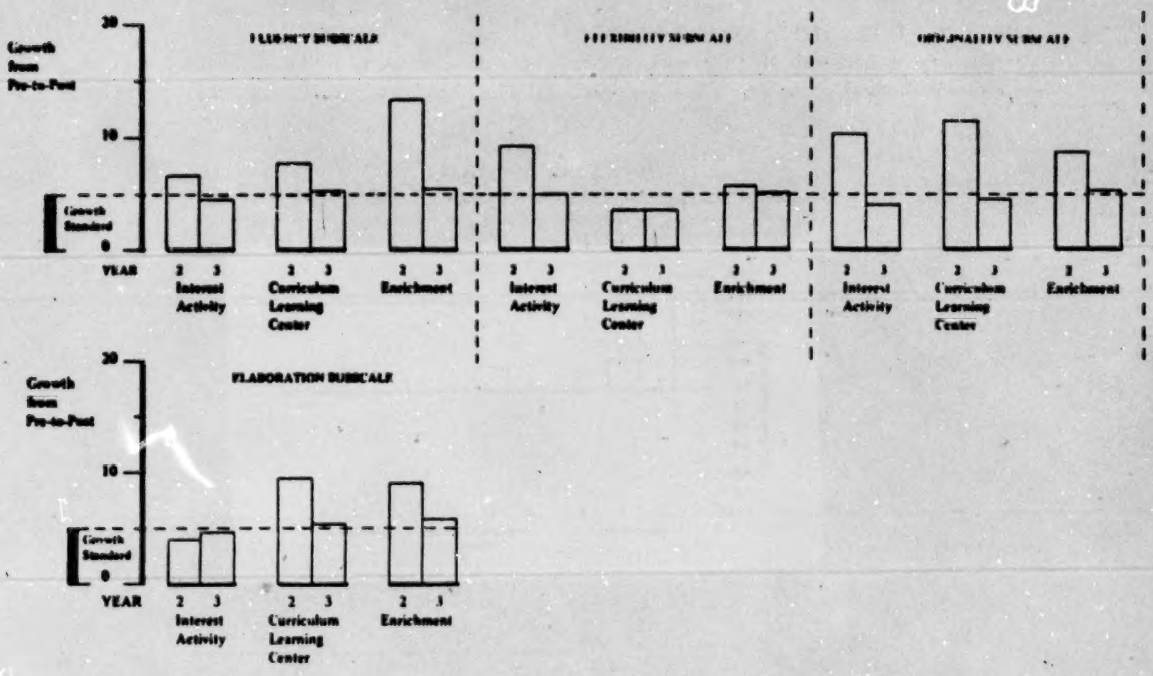


2. TWO YEAR TRENDS IN CREATIVITY

As discussed above, comparable panel data on the Torrance tests are only available for Years Two and Three. The data for the four subscales on the Torrance Tests of Creative Thinking are presented in Figure 52 (see next page).

The data confirm the results observed in both the parent and teacher surveys: growth on all subscales of the Torrance tests is down in Year 3–in distinct amounts in all program options. As has been suggested previously, this decline in effect on creativity requires some investigation on the part of program management to determine its cause and a possible remedy.

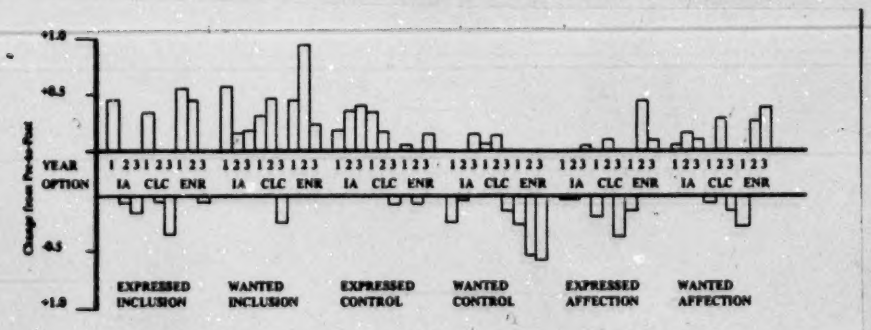
FIGURE 52
TWO YEAR TRENDS ON
THE TORRANCE TESTS OF CREATIVE THINKING
(PANEL DATA)



3. THREE YEAR TRENDS IN SOCIAL RELATIONS

The program has no intentions of promoting change in the social relations of pupils. The three year analysis of panel data found little evidence of any reliable change in social relations as measured by the FIRO-BC instrument. The data are presented in Figure 53, below.

FIGURE 53
THREE YEAR GROUP TRENDS
ON THE FIRO-BC SUBSCALES
(PANEL DATA)

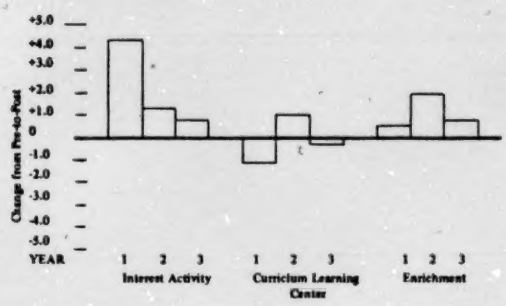


The more-or-less unsystematic pattern in the year-to-year changes indicates that neither the program nor any of the options has any systematic effect. Further, the magnitude indicates that the observed changes are generally less than one half point on a ten-point scale, well within the statistical reliability of the measure. Thus, the panel data underscore the conclusion which has been reported previously the program has little of no effect on social relations.

4. THREE YEAR TRENDS IN SELF-CONCEPT

Previous reports have indicated that the pupils begin the program with a well-developed self-concept which is affected very little by the program. The three year panel data confirmed this, as shown in Figure 54, below.

FIGURE 54
THREE YEAR TRENDS ON
THE PIERS-HARRIS CHILDREN'S SELF-CONCEPT TEST
(PANEL DATA)

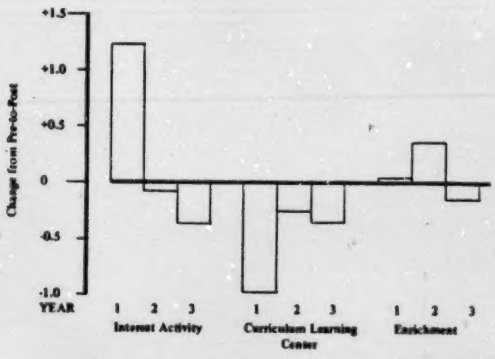


The data indicate that change on the Piers-Harris measure was on the order of one to two points on a scale of eighty points. The data are completely inconsistent with any hypothesis of "elitism"–that the program leads to excessively elevated self-concept on the part of the pupils.

5. THREE YEAR TRENDS IN ATTITUDE TOWARD SCHOOL AND LEARNING

The evaluation study developed *About Me* as an instrument to assess attitude towards school and learning. The three year trends in this measure are shown in Figure 55, below.

FIGURE 55
THREE YEAR TRENDS ON ABOUT ME–
ATTITUDE TOWARD SCHOOL AND LEARNING
(PANEL DATA)



The data indicate that the general trend has been toward a decline on the measure, particularly in the CLC option. However, the magnitude of these changes is small. The "bounce back" effect, discussed in Subsection B, indicates that these declines may be of relatively minor significance.

6. SUMMARY FOR THE PANEL DATA

Overall group trends were studied for the three years of program operation. The data indicated that the program was successful in meeting its goal of improving academic achievement -particularly in the area of mathematics. Although only two years of trend data were available, the data showed that a general decline had occurred in the measures of creativity, generating cause for concern.

The data indicated that the program had—as intended—little of no effect on either self-concept or social relations. However, the analysis showed a general decline in attitude toward school and learning.

SUBSECTION B: THREE YEAR LONGITUDINAL DATA

METHODOLOGY

The pupil records for the student testing program for all three years were sorted by computer to identify all individuals who began the program as fourth graders in 1974 and who had complete records for all three years ("complete" defined as pre and post scores on all five instruments for the three evaluation years).

A total of 97 such pupils were found. Their records for each year were merged and subjected to analysis to determine the impact of continued exposure to the program on pupil performance.

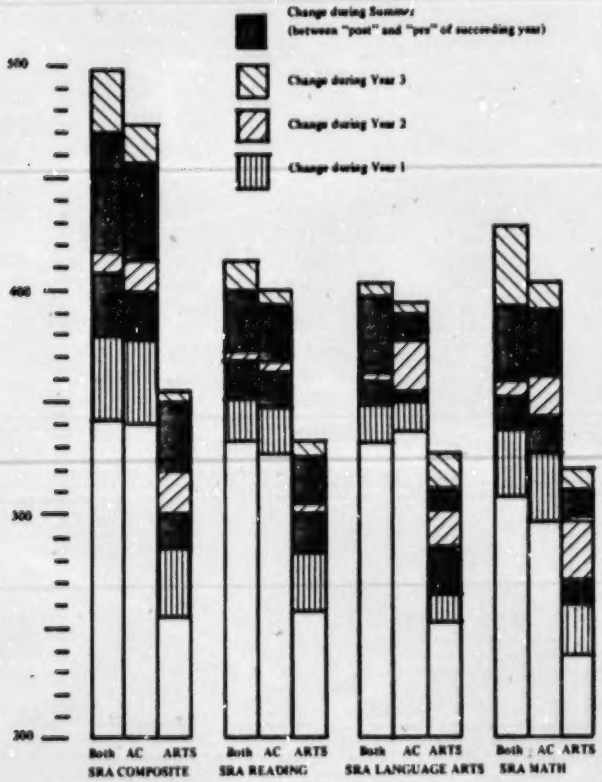
As discussed in Subsection A there are only two years of data available for the Torrance Tests of Creative Thinking due to the use of different forms for the academic and arts areas during Year 1.

Of interest in the analysis are the "summers"—the periods between the "post" measurements (which are taken in April-May) and the "pre" measurements (which are taken in October-November). During this period, the pupil is out of school for a period of approximately three months.

1. LONGITUDINAL EFFECT ON ACADEMIC ACHIEVEMENT

An analysis of the composite and three basic subscales of the SRA achievement battery is found below in Figure 56.

FIGURE 56
YEAR-TO-YEAR CHANGE ON
THE SRA ACHIEVEMENT BATTERY
Based on analysis of 97 pupils with complete records for all three program years



The results confirm findings from previous analyses of group data: children who have gifts in both academic and arts areas do better academically than those who have gifts in only one area.

The data also show that during Year 2 growth in academic achievement was more limited than that in Years 1 and 3. However, the most interesting finding is that growth in the "summers" far exceeds that which takes place during the school year. This indicates that there may be some form of "consolidation" effect which takes place during the summers in which the material which was learned during the previous year becomes a part of the student's behavioral repertoire. On the other hand, these pupils are gifted--and may participate in summer classes, or other educational enterprises during the summers. However, the effect was noted on all subscales, indicating that a more basic process is in operation.

Further, an analysis of the "summer" effect by sex, ethnic background, socioeconomic status and program option failed to account for the variation in magnitude of the "summer" effect.

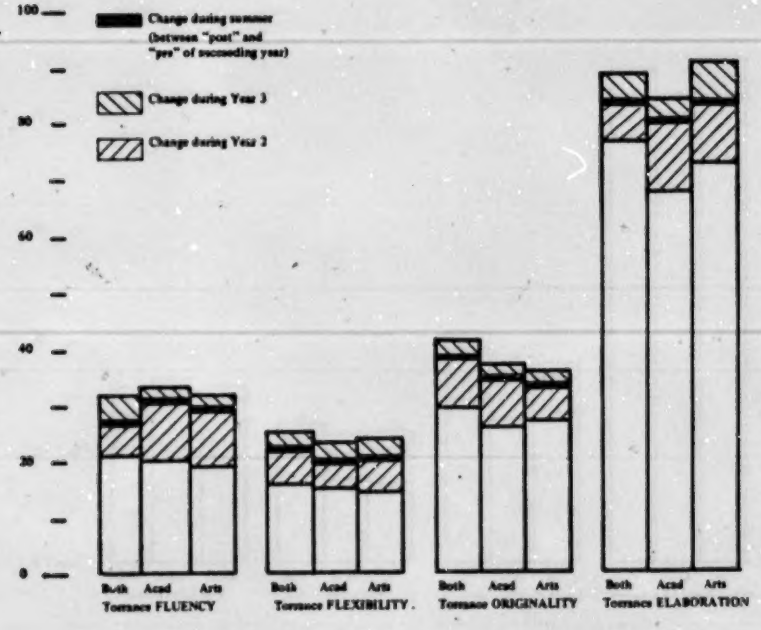
The question of growth in achievement in the absence of formal programmatic activity is highly interesting as a research question. However, the existing data base makes further investigation of this phenmenon impossible.

The data are, however, consistent with previous reports, indicating that change observed during the academic year does generally meet the performance standards.

2. LONGITUDINAL EFFECTS ON CREATIVITY

The analysis of the Torrance data for all three years is presented in Figure 57, below. They indicate that pupils who have "dual" gifts do no better on the Torrance tests than pupils with arts or academic gifts alone. Further, the data also agree with other sources which indicate that the growth on the Torrance measures was considerably less in Year 3 than the growth observed in Year 2.

FIGURE 57
YEAR-TO-CHANGE ON THE
TORRANCE TESTS OF CREATIVE THINKING
Based on analysis of 97 pupils with complete records for all three program years.
NOTE: During Year 1, incomparable forms were used.



The data on "creativity" show very little of the "summer" effect observed in the academic achievement data. Since most of the growth in creativity took place during the academic year, there is very little question as to the effects of the program in the area of creativity.

However, the multiplicity of sources which indicate that there has been a drop in creativity in Year 3 relative to Year 2 does also indicate that investigation is warranted.

3. LONGITUDINAL EFFECTS ON SOCIAL RELATIONS

The three year longitudinal trends on the FIRO-BC measures are presented in Figures 58 through 63. In general, the data show great fluctuation, although most data points are well within the statistical norm limits set for each subscale.

FIGURE 58
THREE YEAR TRENDS ON THE
FIRO-BC EXPRESSED INCLUSION SCALE
Based on analysis of 97 pupils with complete records for all three program years

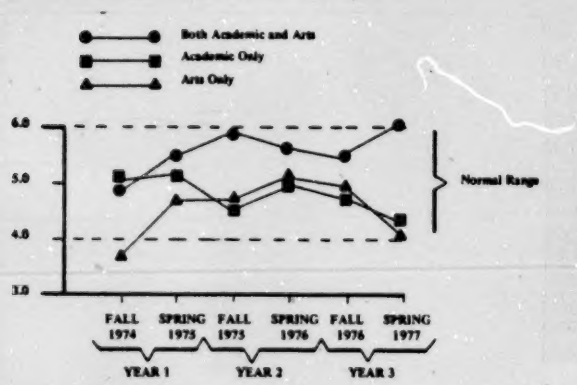
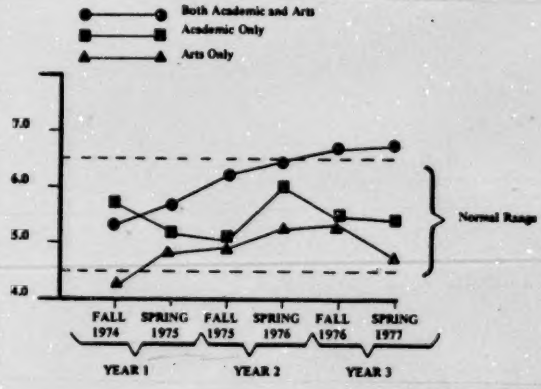


FIGURE 59
THREE YEAR TRENDS ON THE
FIRO-BC WANTED INCLUSION SUBSCALE
Based on analysis of 97 pupils with complete records for all three program years



With respect to inclusion, the group having gifts in both academic and arts areas seemed to show an increasing trend toward expressing and wanting more inclusion in group activities. However, these trends were statistically normal. The groups with gifts in only one area were virtually indistinguishable on the Inclusion Subscale.

FIGURE 60
THREE YEAR TRENDS ON THE
FIRO-BC EXPRESSED CONTROL SUBSCALE
Based on analysis of 97 pupils with complete records for all three program years

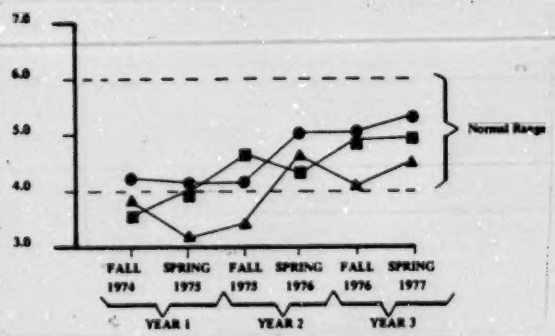
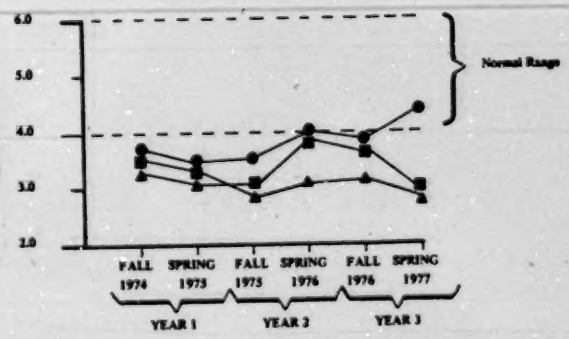


FIGURE 61
THREE YEAR TRENDS ON THE
FIRO-BC WANTED CONTROL SUBSCALE
Based on analysis of 97 pupils with complete records for all three program years



The data for the Expressed Control (assertiveness) show a trend from lower assertiveness to more-or-less normal levels. All three groups are, however, virtually indistinguishable–and ended their three years in the program with scores centered directly on the norm.

For Wanted Control (low score indicates independence) all groups appear to have begun the program well below the norm and have finished at the same levels. These data corroborate other sources which indicate that the pupils do exhibit an unusual amount of independence.

FIGURE 62
THREE YEAR TRENDS ON THE
FIRO-BC EXPRESSED AFFECTION SUBSCALE
Based on analysis of 97 pupils with complete records for all three program years

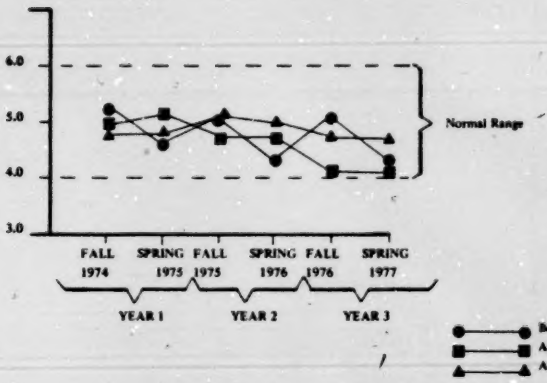
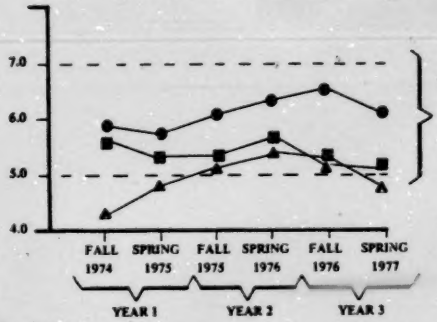


FIGURE 63
THREE YEAR TRENDS ON THE
FIRO-BC WANTED AFFECTION SUBSCALE
Based on analysis of 97 pupils with complete records for all three program years



For both affection subscales, the data are within the published "normal" ranges. For Expressed Affection, the time series of data points is characterized by fluctuation around the statistical norm. The group with both academic and arts gifts seems to have slightly higher Wanted Affection than the other groups although it is closer to the norm than the other groups. The "arts only" group ended the third year slightly outside the normal range.

These data represent additional support for the hypotheses that:

- The children in the program have essentially normal social relations, with the exception of unusual amounts of independence.
- The program has little–if any–effect on the social relations of children.

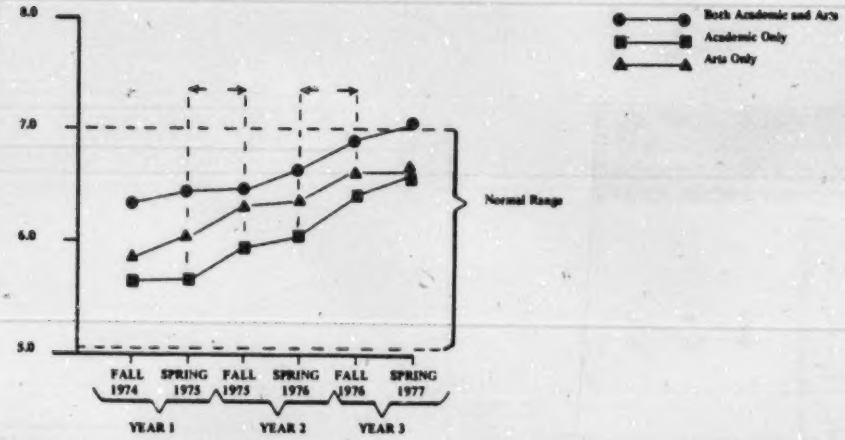
These data are therefore evidence against any assertion that the program is linked with any social pathologies such as "elitism" or "withdrawal."

4. LONGITUDINAL EFFECTS ON SELF-CONCEPT

The trends over the three years on the Piers-Harris Children's Self-Concept Scale are presented in Figure 64 (see next page).

While previous reports and the panel data indicate that the program has little effect on the Piers-Harris scores, the longitudinal data reveal a gradual trend toward increasing scores. However, the major increases in the scores occur in the "summer" periods, as shown in Figure 64. In fact the increases during the school year are generally quite small when compared with the major increases observed during the "summers." Thus, although there appears to be a trend toward elevated self-concept scores, it appears that factors outside the schools are the major contributors to this increase. Further, although some elevation has taken place, all scores are within the acceptable statistical norms for the measure.

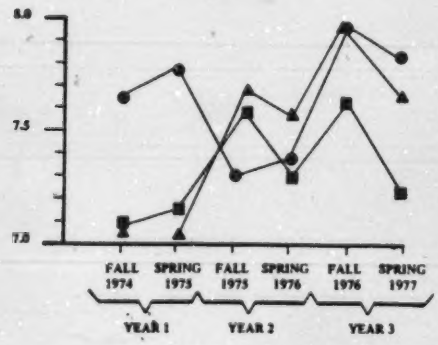
FIGURE 64
THREE YEAR TRENDS ON THE
PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE
Based on analysis of 97 pupils with
complete records for all three program years



5. LONGITUDINAL EFFECTS ON ATTITUDE TOWARD SCHOOL AND LEARNING

The three year effects of the program on the *About Me* test are shown in Figure 65, below.

FIGURE 65
THREE YEAR TRENDS ON
ABOUT ME (ATTITUDE TOWARD LEARNING)
Based on analysis of 97 pupils with
complete records for all three program years



The data indicate that there is considerable fluctuation in the scores. Previous reports and the panel data have indicated that there is a decline in scores from pre to post. The longitudinal data generally confirm these results, but also reveal a "bounce back" effect over the summers: in this, the scores show a marked increase in scores in the fall after decline in the spring. These data indicate that the pressures of the school year may cause the pupil to have temporarily lowered sentiments about school and learning which increase dramatically over the "summer" period. The net result, however, is a gradually improved opinion of school. (Note that all three groups ended the three year period with higher scores than those with which they began.)

Thus, some of the more negative findings developed out of the previous reports and the panel data may be mitigated by the "bounce back" effect. At any rate, the data suggest that there is a general trend toward improvement in Attitude Toward School and Learning which is also accompanied by wide variation in scores.

6. SUMMARY FOR THE LONGITUDINAL ANALYSIS

The data of 97 pupils who had complete records for the three years of operation of the Program for the Gifted and Talented. The analysis revealed the presence of effects during the "summers"--or the period between the "post" measurement of one year and the "pre" measurement of the succeeding year:

- Considerable growth on the SRA achievement battery was noted during the "summer" periods. The change was from two-to-three times greater than the growth observed during the academic year.
- A gradual upward elevation in self-concept was noted, with major changes occurring in the "summer" periods.
- Attitude toward school and learning has generally improved even though recent panel data have shown small decreases during the "pre" to "post" periods--the improvement is due to the offsetting influences of large gains during the "summer" periods.
- The Torrance (creativity) and FIRO-BC (social relations) data did not show any marked or unusual changes during the "summer" periods.

The presence of noticeable changes in test scores during periods when the pupil is not in contact with the program indicates that factors outside the program have powerful effects on student performance. The "summer" effect was relatively consistent across sex, ethnic background and socio-economic status, which indicates that its cause may be explained by some form of "consolidation" effect whereby the student reflects on the material which has been learned, leading to more meaningful and lasting insights.

However, the presence of the "summer" effect indicates that the evaluation of programs for the gifted and talented must not overlook this factor. Hence, a longitudinal, rather than a "panel" approach to the evaluation of such programs seems warranted. This is especially important in the area of academic achievement where the major portions of growth seem to occur during the "summers."

The longitudinal analysis did, however, support previous findings from other sources:

- The program has a beneficial effect on academic achievement, particularly when pupils have gifts in both academic and arts areas.
- The program has a beneficial effect on creativity, although growth in Year 3 was considerably less than that in Year 2.
- The program has virtually no effect on social relations but pupils begin and end the program with an unusually high amount of independence.
- The program seems to mildly enhance self-concept and attitude toward school and learning, although the "summer" effect plays a large role.

Thus, the longitudinal analysis supports the merits of the program but the discovery of the "summer" effect indicates that some unknown factors interact with the program to produce results which are, in fact, more positive than those observed with the panel data.

SECTION FIVE
ANALYSIS OF THE EXPANDED COMPARISON GROUP STUDY

During Year 2, a limited investigation was made of the relationship between pupils in the Program for the Gifted and Talented and the general population of pupils in the Alexandria school system. This comparison was only made on the basis of academic achievement, due to resource limitations. However, the brief study conducted during Year 2 led to interest on the part of both the program management and the general research community for a more comprehensive comparison group study. Accordingly, during Year 3, the study has been expanded to permit both comparison on all five student testing instruments and a longitudinal view of academic achievement. This study will provide a more definitive view of the performance of the gifted and talented program vis-a-vis the general school population.

METHODOLOGY

The study is built around a random sample of pupils drawn from the Alexandria school system files; in particular, a tenth-count sample was drawn of pupils in grades 4, 5 and 6 in the schools involved with the gifted and talented program. The sample was examined by Alexandria Pupil Services staff and winnowed to include pupils who met the following criteria:

- The pupils were not involved with the program for the gifted and talented.
- The pupils had complete data records for the academic years 1974-1975, 1975-1976, and 1976-1977.

The selection records of the program were compared with the sample which was further subdivided into two groups:

- *Gross Screening Only:* Those pupils who passed the gross screening process for the gifted and talented program, but who were rejected in the fine-screening cycle (12 pupils).
- *General Population:* Those pupils who neither participate in the G & T program nor ever entered the gross screening process (32 pupils).

The pupils in the sample were located and parental permission for their testing was obtained. The students were then given the following tests:

- *Piers-Harris Children's Self-Concept Test*
- *FIRO-BC*
- *Torrance Tests of Creative Thinking*
- *About Me*

The tests were delivered to the evaluator's offices where they were scored and coded for keypunching, which was performed by a commercial firm subject to 100% key verification. The data were analyzed on the CDC 6400 machine at the University of Virginia Computing Center.

The data support two basic lines of analysis:

- *Incidence* studies which analyze the distribution of pupils in each group with respect to ethnic background, sex, and income level.
- *Comparison* studies which provide a contrasting view of the performance of pupils on each of the test instruments.

These results are presented in the following two subsections.

SUBSECTION A: INCIDENCE STUDIES

This subsection provides a comparison between the incidence studies reported in Year 2 and those conducted during Year 3. The methods used in the two years are slightly different:

- During Year 2, a large (N = 193) sample was chosen which included both pupils in the gifted and talented program and the general population.
- During Year 3, the random sample (N = 44) was limited to pupils not in the gifted and talented program; the samller sample size was dictated by the resource requirements of additional testing.

The Year 2 incidence reports are based entirely on counts from the sample. For Year 3, the incidence reports are based on two sources:

- Complete counts for pupils in the gifted and talented program.
- Counts from the random sample for pupils in the "gross screening only" and "general population" groups.

The random sample indicated that 12 of the 44 pupils had taken part in the gross screening process in one of the three program years. This is indicative of the breadth of search conducted to identify candidates for the program. The fact that approximately 25% of the pupils were considered for membership in the program indicates that the program took steps to minimize errors of omission (i. e., failure to consider persons who might have been successful in the program). Given that many were considered, we shall now investigate those who were selected.

1. ETHNIC BACKGROUND

The program design and, in particular, the criteria for selection of pupils were constructed with the intent of seeking full participation by pupils of all ethnic backgrounds. The incidence of the various ethnic categories is shown in Table 7, below.

TABLE 7
DISTRIBUTION OF PUPILS IN THE PROGRAM FOR THE GIFTED AND TALENTED AND IN THE COMPARISON GROUP BY ETHNIC BACKGROUND
(Table entries are percentages of pupils in each classification)

	WHITE		BLACK		OTHER[a/]	
	year 2[b/]	year 3[c/]	year 2	year 3	year 2	year 3
Both Arts & Academic	80	73.2	20	22.1	0	4.7
Academic Only	68	62.3	32	35.2	0	2.5
Arts Only	54	52.3	42	43.4	4	4.3
Gross Screening Only	50	58.4	48	33.3	2	8.3
General Population	54	63.1	40	40.6	6	6.3

NOTES: a/ includes Hispanic and Oriental
b/ all entries based on a random sample
c/ entries for the G & T program based on complete counts, entries for "gross screening only" and "general population" based on a random sample

The data indicate that selection into the program is relatively "blind" to ethnic background; the gross screening process appears to match the general population quite closely, indicating that the pool of potential candidates for the program reflects the ethnic distribution of the population. Within the gifted and talented program similar results are observed. Blacks are slightly over-represented in the arts areas and are slightly under-represented in the academic areas. A chi-square test of contingency indicates that these differences are not significant. There are too few cases to adequately assess the "representativeness" of the program with respect to Hispanics and Orientals.

On balance, however, the data are consistent with the hypothesis that there is no discrimination with respect to ethnic background in selection into the program or placement in either of the major options (i.e., academic or arts).

2. SEX

The program is also committed to full participation by all gifted pupils without regard to sex. The incidence data with respect to sex are presented in Table 8, below.

TABLE 8
DISTRIBUTION OF PUPILS IN THE PROGRAM FOR GIFTED AND TALENTED AND IN THE COMPARISON GROUP BY SEX
(Table entries are the percentage of pupils in each classification)

	MALE		FEMALE	
	year 2[a/]	year[b/]	year 2	year 3
Both Arts & Academic	20	45.6	80	54.4
Academic Only	54	52.1	46	47.9
Arts Only	35	40.3	65	59.7
Gross Screening Only	50	50.0	50	50.0
General Population	53	53.1	47	46.9

NOTES: a/ all entries for Year 2 based on a random sample
b/ for year 3, entries for the G & T program based on complete counts; entries for "gross screening only" and "general population" based on a random sample

The data from both Year 2 and Year 3 indicate that the method of forming the pool of candidates for the program is absolutely blind with respect to sex: data from both years indicate that the gross screening only group contains exactly equal numbers of males and females. However, selection into the program results in slightly more female admissions (263) than male (225).

It was noted in the Year 2 report that females were present in much higher numbers in the arts activities than would be expected from their proportions in the general population. This was confirmed in the full counts of the program population in Year 3.

The data cannot be used to determine if this imbalance reflects a population trend in the arts area of a defect in the selection procedures. However, the matter should receive some attention by program management.

3. SOCIOECONOMIC STATUS

Due to resource limitations and considerations of privacy, it is impossible to construct an index of socioeconomic status which would meet the tests required by sociological studies of the phenomenon. However, to provide a first-cut look at the socioeconomic makeup of the gifted and talented group, the archival records of *School Lunch Subsidy* were used as a rough measure of socioeconomic status because the subsidy is tied to family income. Accordingly, pupils were placed in the "lower SES" category if they were receiving such a subsidy and in the "higher SES" if they were not. The incidence of pupils in both categories is presented in Table 9 (see next page).

The data show that the proportion of pupils in the various gifted and talented program activities roughly mirrors the general population with respect to socioeconomic status. The "academic only" group shows a tendency toward greater participation by higher SES pupils; however, a chi-square test of contingency failed to show significant differences between this group and the general population.

TABLE 9
DISTRIBUTION OF PUPILS IN THE
PROGRAM FOR THE GIFTED AND TALENTED
AND IN THE COMPARISON GROUP BY SOCIOECONOMIC STATUS (SES)
(Table entries are the percentage of pupils in each classification)

	LOWER SES[a/]		HIGHER SES	
	year 2[b/]	year 3[c/]	year 2	year 3
Both Arts & Academic	0	15.1	100	84.9
Academic Only	16	17.3	84	82.7
Arts Only	28	29.3	72	82.7
Gross Screening Only	36	33.3	64	66.7
General Population	24	28.1	71	71.9

NOTES: a/ SES is based on receipt of school lunch subsidy
b/ all entries for Year 2 are based on a random sample
c/ for Year 3 entries for the G & T program are based on complete counts; entries for "gross screening only" and "general population" are based on a random sample.

Thus, the data support the hypothesis that the gifted and talented program is relatively "blind" to socioeconomic status in selection and assignment to programs.

4. SUMMARY FOR THE INCIDENCE STUDIES

A study of the distribution of pupils with respect to ethnic background, sex and socioeconomic status was conducted. Pupils in the program for the Gifted and Talented were compared with pupils in the general population and with those pupils who had been in the initial gross screening pool.

Evidence was found which indicated that the program had spread a wide net in seeking candidates for the program, indicating that errors of omission are likely to be minimal.

The selection criteria were found to be relatively "blind" with respect to ethnic background, sex and socioeconomic status, in that the distribution of pupils in the program was approximately the same as that in both the gross screening group and in the general population.

SUBSECTION B: COMPARISON OF PUPIL PERFORMANCE IN THE GIFTED AND TALENTED PROGRAM WITH THAT OF PUPILS IN THE GROSS SCREENING GROUP AND THE GENERAL POPULATION

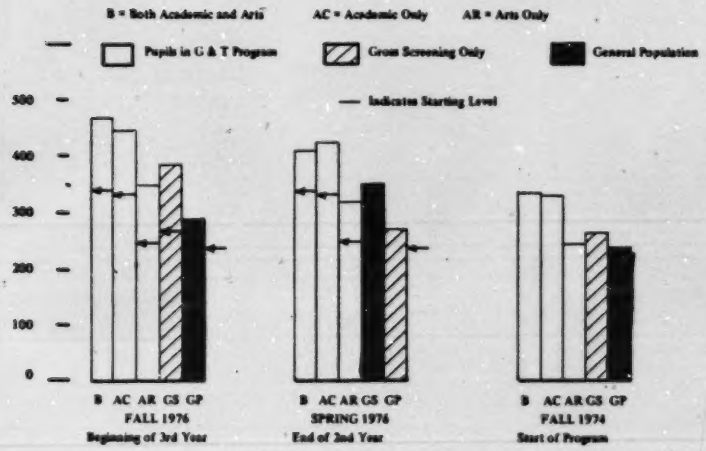
The additional testing of the comparison group makes possible the assessment of performance of the pupils in the Program for the Gifted and Talented with respect to both the general population and those pupils with high levels of achievement who were initially included in the gross screening group.

1. COMPARISON WITH RESPECT TO ACADEMIC ACHIEVEMENT

The collection of information on past academic achievement on members of the comparison group also makes possible some longitudinal comparisons. In particular, it is possible to assemble a group of sixth graders in the two comparison groups whose performance on the SRA achievement battery can be compared with gifted pupils in the longitudinal group, as reported in Section Four.

With respect to type of gift, the results confirm previous findings that pupils with gifts in both academic and arts areas exhibit superior performance. Further, as shown in Figure 66, below, pupils with gifts in the arts area have somewhat lower composite achievement scores than those with gifts in academic areas.

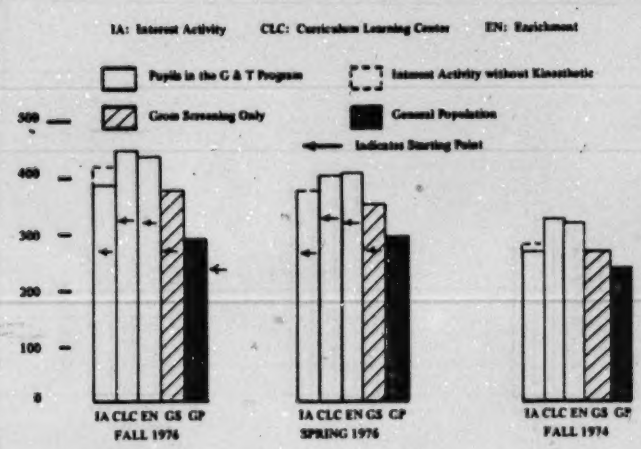
FIGURE 66
COMPARISON OF SRA COMPOSITE SCORES FOR A GROUP OF SIXTH GRADE PUPILS
Pupils from the gifted and talented program are those who had participated for all three years. Pupils from the "general population" group were obtained from a random sample–by type of gift



The data indicate that although the talented pupils begin with lower scores than the academic group, they do benefit from participation in the program: while they started the program at fourth grade achievement levels on a rough par with the general population–by the beginning of the sixth grade, the arts pupils were achieving at eighth grade levels, as contrasted with the general population which was midway between fifth and sixth grade levels.

When program option is considered, the effects of the program are seen more clearly. As shown in Figure 67 (see next page) the pupils in the gifted and talented program have superior SRA composite scores than either of the comparison groups–even though the gross screening group represents approximately the top 25% of the pupils with respect to achievement.

FIGURE 67
COMPARISON OF SRA COMPOSITE SCORES
FOR A GROUP OF SIXTH GRADE PUPILS
BY PROGRAM OPTION



The Interest Activity option contains the kinesthetic activity which is known to have lower scores on the SRA series. Accordingly, the means for this group have been computed both with and without the kinesthetic group (as shown with the dotted lines).

Overall, the Program for the Gifted and Talented appears to produce sizeable and marked gains in academic achievement. Further, the differences observed at the beginning of the program support the selection criteria. They appear to select academically gifted pupils for academic options, but do not discriminate against those with gifts in the arts areas.

It is also possible to use this data set to investigate the "summer effect" reported in Section Four. In particular, the change between spring of 1976 (*post* measurement in Year 2) and the fall of 1976 (*pre* measurement in Year 3) may be examined for both the gifted and talented program and the two comparison groups.

The basic data for this comparison are presented in Table 10, below.

The data show a "summer effect" in all groups which exceeds of approaches the performance standards set for the measure. However, the effect is much more pronounced in the gifted program than in either of the comparison groups. Pupils in the G & T program had almost twice as much change during the period as the gross screening group and nearly four times as much as the general population.

Within the three program options, the Enrichment option has the largest "summer effect" while the Interest Activity has the smallest.

Thus, the "summer effect" appears to be a genuine phenomenon of the program for the gifted and talented.

2. COMPARISON WITH RESPECT TO CREATIVITY

Since the performance measures for the comparison group were taken at the end of the final year, the comparisons cannot establish the beneficial effects of the program, since the levels of performance for the general population at the start of the program are unknown. However the comparison is useful in examining the ultimate products of the program by type of gift and by program option, with the "gross screening" and "general population" groups as reference standard.

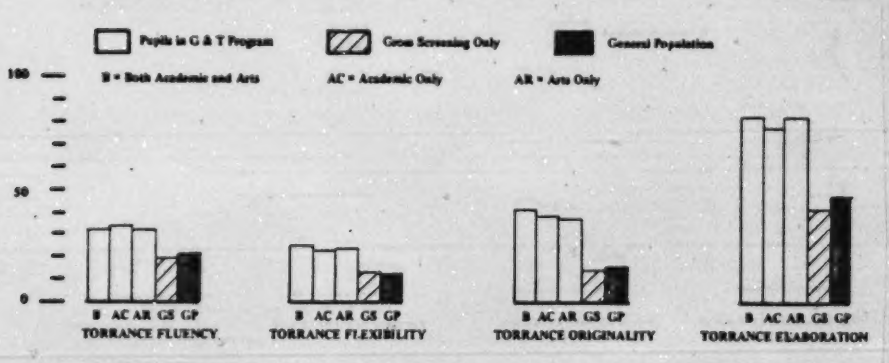
TABLE 10
ANALYSIS OF THE "SUMMER EFFECT" FOR 1976

		MEAN SCORE SRA COMPOSITE		MAGNITUDE OF "SUMMER EFFECT"
		SPRING 1976	FALL 1976	
Gifted and Talented Program analyzed by gift	Both Academic[a/] and Arts	416.91	470.09	53.18
	Academic Only	397.64	456.33	58.69
	Arts Only	300.09	350.26	50.17
Gifted & Talented Program analyzed by option	Interest Activity[a/]	348.55	387.53	38.98
	Curriculum Learning Center	403.17	446.57	43.40
	Enrichment	380.59	448.82	58.23
Comparison Group	Gross Screening Only[b/]	355.33	388.25	32.92
	General Population[b/]	279.00	293.56	14.56

NOTES: a/ based on 97 pupils who had complete data records
b/ based on 6th grade pupils in a random sample

The analysis of performance by type of gift is shown in Figure 68, below.

FIGURE 68
COMPARISON OF SCORES ON
THE TORRANCE TESTS OF CREATIVE THINKING



The data show that there is relatively little difference among the types of gifts–academic, arts, or both–with respect to the four creativity subscales at the end of the program. However, the differences between pupils in the program and those in the comparison groups are quite noticeable. Further, the "gross screening only" group is slightly lower than the "general population" group on three of the four subscales. This is additional evidence for the validity of the selection procedures in considering factors other than academic achievement in the admission of pupils to the program. In comparison with Figures 66 and 67, the "gross screening" group had generally higher achievement than the general population: the fact that these pupils were rejected, coupled with the observation that their Torrance scores were slightly lower than the general population group indicates that the program was selecting on the basis of both academic achievement and creativity.

FIGURE 69
COMPARISON OF SCORES ON THE TORRANCE TESTS OF CREATIVE THINKING

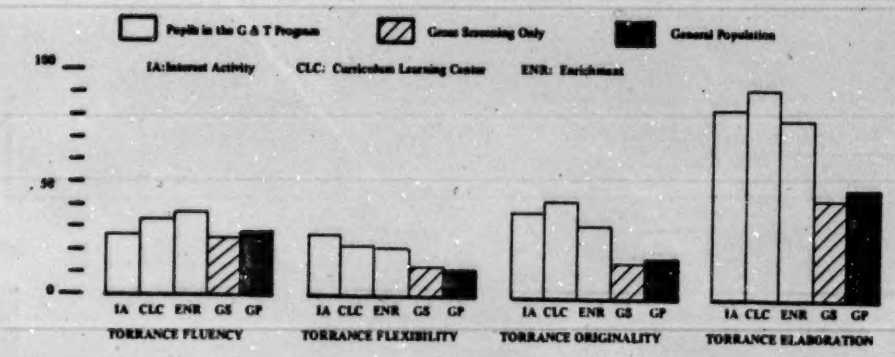


Figure 69, above, shows the comparison with respect to program option. The data confirm observations made in the Year 2 report:

- The Enrichment option does well on the fluency subscale.
- The Interest Activity option has the highest scores on the flexibility subscale.
- The Curriculum Learning Center exhibits the highest performance on both the originality and elaboration subscales.

However, as also reported in Year 2, there is no general explanation of this phenomenon.

The comparison data do, however, indicate that although performance of pupils in the program is superior to that observed in both the "gross screening" and "general population" groups on all four subscales, the major (i.e., most apparent) differences are observed on the originality and elaboration subscales.

Thus, for measures of creativity, the data support the notion that the program fosters creative development and indicates that the program's selection criteria are broad-based, including factors other than academic achievement.

3. COMPARISON WITH RESPECT TO SOCIAL RELATIONS

The previous analyses reported in Sections One, Two and Four have indicated that the measureable aspects of pupil social relations are quite normal with the sole exception that pupils in the gifted and talented program exhibit an unusual amount of independence. The only negative voice comes from the regular classroom teachers who indicate that the program may be fostering some form of elitism (as detailed in Section Three). In addition the evaluator has received informal comments from other researchers indicating that the published norms may be invalid for the particular Alexandria school population.

However, as shown in Figures 70 and 71 (see next page) the following hold:

- A fourth source of information indicates that the pupils in the gifted and talented program exhibit normal social relations with the exception of unusual independence.
- The "gross screening" and "general population" groups are well within the norm range and the "general population" group is close to the norms on all measures.

Thus, the information from the comparison based on the FIRO-BC scores supports the use of the published and underscores the general conclusion that the social relations of the gifted and talented pupils are normal with the exception of high independence.

The resolution of the teacher data with the FIRO-BC data therefore hinges on the "independence" dimension and leaves two questions which cannot be resolved by the data at hand:

1. Do the teachers perceive "independence" as an "attitude of superiority"?
2. Do high levels of independence constitute pathological social relations?

FIGURE 70
COMPARISON OF SCORES ON
THE FIRO-BC INSTRUMENT

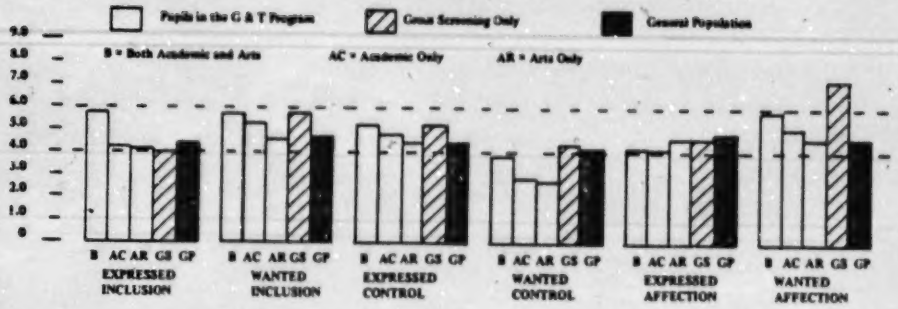
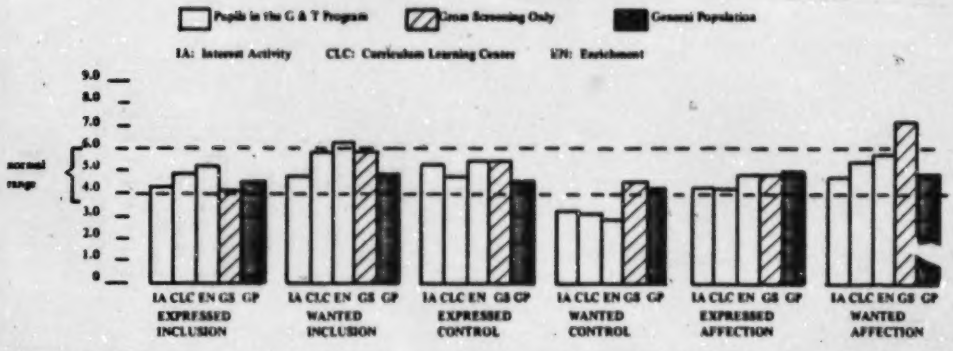


FIGURE 71
COMPARISON OF SCORES ON
THE FIRO-BC INSTRUMENT
BY PROGRAM OPTION



The former question might be resolved by a detailed debriefing of teachers to determine the specific nature of the "attitudes of superiority" which were reported on the survey. Since this would necessarily involved the discussion of specific incidents and specific pupils, this should be handled by responsible officials of the Alexandria school system, rather than by the third-party evaluator.

The latter question involves a broader discussion. The determination of the point at which "independence" reaches levels at which it is harmful to either the individual or society has always been crucial to American political philosophy. It therefore seems unlikely that the question will ever be answered in a definitive fashion, given any conceivable data set.

Thus, the data on social relations yields additional support to the notion that the pupils in the program have normal social relations which are impacted very little by the program.

4. COMPARISON WITH RESPECT TO SELF-CONCEPT

The Piers-Harris test measures the child's attitude toward him/herself. It is essentially an index of the child's assessment of his/her own "worth" to others along physical, intellectual, social, and family dimensions. A child with a high self-concept score is one who believes that others value his personal attributes.

By selection into the program for the gifted and talented, the child receives some objective feedback as to his self-worth. However, there exists the possibility that the child may be stigmatized by peers outside the program who may resent this special status. Of this is born the stereotypes of: (1) the gifted child "who wishes to be normal" in order to remove the stigma; (2) the gifted child with narrow interests; or (3) the "four-eyed monster" who has little social appeal.

The Piers-Harris measure is relstively sensitive to these three routes to the lowering of self-worth and is used in the evaluation design as a method of detecting the presence of such stigmatization. As shown in Figures 72 and 73, below, the notion of stigmatization is completely inconsistent with the observed data.

FIGURE 72
COMPARISON OF SCORES ON THE PIERS-HARRIS CHILDREN'S SELF-CONCEPT TEST BY TYPE OF GIFT

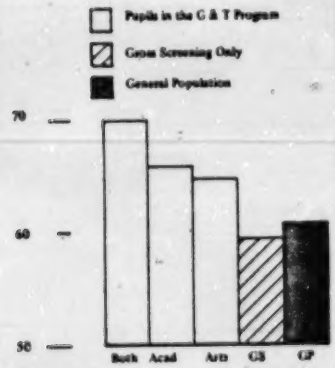
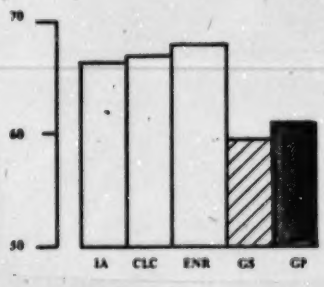


FIGURE 73
COMPARISON OF SCORES ON THE PIERS-HARRIS CHILDREN'S SELF-CONCEPT TEST BY PROGRAM OPTION



The data show that pupils in the program for the gifted and talented have somewhat higher scores than those in the "gross screening" and "general population" groups. However, the differences are not extreme- no greater generally than six points on an eighty-point scale.

Pupils with gifts in both academic and arts areas have the highest scores, but also have received the highest amount of objective confirmation of their abilities. There is little difference between the "academic only" and "arts only" groups, indicating that the program or the surrounding millieu has not expressed a preference for either type of gift.

Finally, all three program options seem to be relatively similar with respect to the measure.

5. COMPARISON WITH RESPECT TO ATTITUDE TOWARD SCHOOL AND LEARNING

The "About Me" instrument was developed as a rough index of the sentiments of the pupils toward the school setting and values placed on the learning experience.

As shown in Figures 74 and 75 (see next page) the pupils in the gifted and talented program generally have a better attitude toward school than do their peers in the "gross screening" and "general population" groups.

Pupils in the "academic only" subgroup were the only class to have lower scores on the measure than the gross screening or general population groups. The difference is, however, minimal, as are the other differences.

The data are consistent with the hypothsis that the program enhances attitude toward learning. On the other hand the numerical magnitude of the enhancement is rather small.

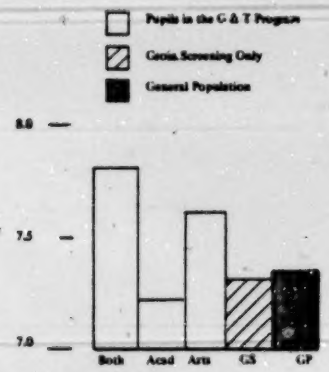
6. SUMMARY FOR THE COMPARISONS

In comparison with a random sample of pupils from the general school population and those who had been a part of the gross screening process, the Program for Gifted and Talented was found to have beneficial effects consistent with its goals.

All program options were found to have superior SRA composite scores in comparison with the two groups. However, a more detailed analysis of the "summer effect" showed that the phenomenon is present to the highest degree in the G & T program and to the least extent in the general population.

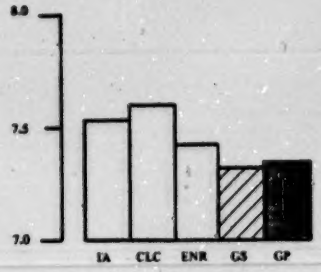
The program was found to have a beneficial effect in the area of creativity; analysis of the gross screening group also provided support for the selection criteria, indicating that factors other than academic achievement enter into the process.

FIGURE 74
COMPARISON OF SCORES ON
ABOUT ME (ATTITUDE TOWARD SCHOOL
AND LEARNING) BY TYPE OF GIFT



FIGURE

FIGURE 75
COMPARISON OF SCORES ON
ABOUT ME (ATTITUDE TOWARD SCHOOL
AND LEARNING) BY PROGRAM OPTION



The analysis of social relations data indicated that the pupils in the G & T program are normal in five of the six aspects, exhibiting only an unusual amount of independence. The testing of the general population group lent support to the use of published norms in the evaluation of the results of the FIRO-BC instrument–and in the conclusion that the social relations of the gifted and talented pupils are normal.

The investigation of self-concept found no evidence of "stimatization" or "withdrawal," but rather determined that the pupils in the program enjoyed a healthy and normal self-concept.

Finally, the program was found to produce a beneficial effect on attitude toward school and learning.

APPENDIX A

DESCRIPTION OF THE INSTRUMENTS USED IN THE STUDY

MEASUREMENT STRATEGY

The evaluator worked with program staff to identify a battery of instruments which would respond to the concerns expressed. On the basis of this work, six instruments were recommended. These are described as follows:

A. *Self-Concept: The Piers-Harris Children's Self-Concept Scale*[1] was selected as an appropriate measure of self-concept. It is a quickly completed (15-20 minutes) self report instrument designed for children over a wide age range. Administered in group form, it requires approximately a third-grade reading knowledge. It can be administered and scored by responsible, educated non-psychologists, but should be interpreted only with the aid of someone knowledgeable in measurement and statistics, psychology of adjustment, and self theory. The scale was designed primarily for research on the development of children's self attitudes and correlates of these attitudes. Scores range from 0 to 80. The Piers-Harris scale has been subjected to numerous validation studies and has been used in more than 100 research studies.

B. *Social Concept: The Fundamental Interpersonal Relation Orientation*[2] inventory for behaviors of children (FIRO-BC) was selected as an appropriate measure of social concept and its related subtopics: it provies a framework for describing general interactions between individuals; this framework involves three constructs:

TABLE 1
EXPLANATION OF FIRO-BC SUBSCALES

	Expressed Behaviors	Notation	Wanted Behaviors	Notation
I. INCLUSION	Hi: S acts to include others in activities Lo: S acts to exclude others in activities	I^e	Hi: S wants to be included in activities Lo: S wants to be left alone	I^w
C. CONTROL	Hi: S acts to determine the behavior of others Lo: S does not act to determine the behavior of others	C^e	Hi: S wants others to determine his behavior* Lo: S does not want others to determine his behavior	C^w
A. AFFECTION	Hi: S acts to show positive sentiments to others Lo: S acts to show absence of positive sentiments to others	A^e	Hi: S wants others to show positive sentiments to him* Lo: S is indifferent to positive sentiments shown to him by others	A^w

*The "wanted control dimension is counterintuitive to some. *Hi* C^w implies *dependence*, *Lo* C^w implies *independence*. The classical authoritarian personality would be Hi on both C^e and C^w. The A^w subscale also requires some explication. A high score on A^w indicates that the subject wants others to show positive sentiments to him; the person with high A^w *values* affection and cannot be said to *need* affection.

- Inclusion: Degree of participation in activities
- Control: Degree of determination of forces affecting one's life, and
- Affect: Amount and nature of emotional content of the relationship.

1. Authored by E. V. Piers and D. V. Harris, it is published in Counselor Recordings and Tests, Nashville, Tenn.
2. W. C. Shutz, *FIRO: A Three-Dimensional Theory of Interpersonal Behavior*, (New York: Holt, Rinehart, 1958).

The FIRO-BC instrument samples the current state of the individual in terms of:

- Degree to which the construct is *expressed* by the individual.
- Degree to which the construct is *wanted* by the individual.

The scale yields six scores which may be represented as shown in Table 1. The instrument produces a numberical rating for each of the six subscales: scores range from 0 to 9. The FIRO-BC was validated on a sample of 200 fourth, fifth and sixth graders in New York City.

C. *Attitude Toward Learning:* No acceptable published instrument could be found which was suitable for this population and thus "About Me" (a brief checklist that assesses student attitudes toward learning) was designed to be used in the project.

The instrument contains (a) directions, (b) solicitation for demographic information and (c) 10 questions which assess the student's attitude toward learning. The instrument is to be group administered and key-scored, yielding a total score that is an index to attitude towards learning (high score is associated with positive attitude toward learning).

The items were selected from a factorial study of attitudes of 200 gifted children reported by M. J. Wittek in an article in the Winter 1973 issue of the *Gifted Child Quarterly*. The "like me"—"not like me" response format has been extensively used by Dr. Stanley Coopersmith. The applicability of this format to the 4th through 6th grade population is described in Dr. Coopersmith's book *The Antecedents of Self-Esteem* (W. H. Freeman Company, 1968). Although reading is not generally a problem with gifted populations, both the directions and the items are keyed to the general population.

The reliability and validity of the instrument were assessed in a small study using pupils enrolled in Saturday sessions conducted under the auspices of the School of Education of the University of Virginia. In addition, the instrument was subjected to a "check test" on representative groups of children from the gifted program and regular classes in the Alexandria schools. The instrument was found to have a high degree of internal consistency and was easily administrable to students in either class. The instrument yields scores which range from 0 to 10.

D. *Achievement:* The SRA achievement series was selected for this area of the study. The fact that the SRA battery was used in the fall statewide testing program was influential in the decision leading to its selection; this was not, however, the determining factor: the content of the tests at all levels has been carefully planned, and the test questions have been written with obvious expertise. The tests give slower students in the lower grades for which they are intended some opportunity for success and at the same time they challenge faster learners in the higher grades. Some overlapping of questions from level to level gives continuity to the series and offers special advantages in comparing results when different levels are administered in the same classroom. Comparability of the two forms, both in content and in difficulty, has been achieved to a greater than usual degree. There is no indication that the tests are unusually speeded.

The battery is composed of five subscales described below:

1. *Reading.* At all levels the reading tests yield comprehension and vocabulary scores, plus a total score. The reading selections are drawn largely from fiction, biography, science, and social studies; in each of the tests at the highest level in the multilevel edition, there is an excellent selection from American poetry. At all levels the selections are interesting and lively, and appear to be of appropriate difficulty in sentence length, sentence complexity, and concept load.

2. *Arithmetic.* The arithmetic tests give subscores in reasoning concepts, and computation, plus a total score. The reasoning questions, built around situations presented in story form, require students to identify the facts relevant to a solution, select the arithmetical process to be used, and do the computation necessary to arrive at the solution. The questions on concepts canvass the student's ability to recognize number symbols, understand the cardinal and ordinal use of numbers, and handle time, money, and measures.

The situational approach in the reasoning subtests, while it no doubt adds an element of interest, does result in some interlocking of questions. Except for the computation subtests for the lowest level in the multilevel edition, for which chance scores give grade equivalent scores well into the lowest grade, the difficulty ranges of the various

levels appear to be appropriate. The large number of questions contributing to each subscore cover quite adequately the traditional mathematics program.

3. *Language Arts.* At all levels, the punctuation, capitalization, and usage questions are presented in a series of stories and personal letters natural to the life of students at those levels. The coverage is quite complete. The questions range from the very obvious to the more exacting points in punctuation, and from a choice between illiterate and literate English to some niceties of language usage to challenge the high scorers.

4. *Science.* These tests are designed to measure "knowledge and understanding of certain representative facts and principles of science." The questions are, however, primarily factual. It is regrettable that, with interpretation, application, and discovery being stressted in the new science curricula, so few diagrams have been included and no attempt has been made to test ability to interpret reading selections, charts, and graphs, or to apply the principles of science to both familiar and unfamiliar situations.

5. *Social Studies.* These tests are designed to measure "understanding and application of representative principles drawn from geography, history, government and economics." The questions primarily measure recall of factual information rather than understanding and application of principles. The questions are, however, extremely well written and edited.

Scores for each subtest are reported on Growth Scales which have been developed for each of the subject matter areas shared by the SRA achievement series and the Iowa Tests of Educational Development to provide a way of expressing test results in the same units from the first through the twelft grade. Although labeled "preliminary," the scales as presented can be used with considerable confidence in studying and predicting student growth.

The Technical Report gives clear and concise accounts of the development of the series and its standardization, and reports impressive test characteristics which show the tests to be generally of appropriate difficulty and length and the two forms of each test to be highly comparable.

E. *Creativity:* This is one of the most complex constructs developed by modern psychology. Current research has produced only one instrument which has a sufficient developmental background to merit inclusion in this study. This is the Torrance Test of Creative Thinking (TTCT). It was designed to measure four aspects of "creative thinking"–fluency, flexibility, originality, and elaboration. Two scores for each aspect are provided–verbal and figural (although norms are not provided for the verbal elaboration scores). The author and publisher recommend that the TTCT be used in research studies of cognitive functioning, individualized instruction, remedial programs, and new educational programs, but also suggest its use for assessing individual students' potentials.

Three figural tests can be given in 30 minutes of testing time, with additional time required for instructions. Seven verbal tasks require 45 minutes of testing time. Since the subjects give free responses to semistructured tasks, the test must be scored by hand. The guides for scoring are quite clear, and the manual discusses scoring errors to avoid.

A scorer requires some training and experience with the instrument. The reported correlations between scores of inexperienced and experienced scorers are generally in the high 90's, ranging from .66 to .99. However, the inter-scorer agreement among inexperienced scores (such as some schoolteachers) will probably be lower. The manual and scoring guide do not provide estimates of the time needed to score each test, but it appears that scoring a test would take a considerable time, even for an experienced scorer. (A scoring service is available through the publisher.)

Although the reliability studies of the TTCT are well summarized in the manual, many of the studies used only one or a few scales. These studies are not fully reported, so it is difficult to assess them in some cases. However, the diversity of studies and samples suggests that the scales have adequate reliability.

The manual summarizes more than 50 studies of the validity of the test. The majority of the studies concerned with construct validity are studies of the personalities of high and low scorers. Many of these studies utilize extreme groups without any information about students in the middle; others used designs that compare "creatives" with an "unselected" sample. In spite of these weak designs and many results that show only slight relations, the studies do suggest that the test does measure behaviors consistent with the literature on creative behavior.

Means and standard deviations are provided for a number of samples, most somewhat restricted. The basic groups used for the two main score conversion tables are 118 fifth graders in St. Croix, Wisconsin, and 108 seventh graders. (These identifications are tentative, because the manual is not as clear as it might be about these groups.) No other conversion tables are provided, and the scores are converted into T scores, but not to centile ranks or other scales. Of course, one could construct his own conversion tables from the means and standard deviations of other groups, as the manual suggests. The means and standard deviations for the groups used for the conversion tables sometimes vary considerably from the means and standard deviations reported in the manual for other fifth and seventh grade groups. For example, on one scale the mean of the fifth graders in one sample is at the 90th percentile of the one used for the tables. Thus, any interpretation of a score must be quite tentative, at best. Although this would seem to be a major limitation, the manual states, "the author and publisher will continue to accumulate comparison group norms on a variety of kinds of populations ranging from kindergarten through graduate school. There is no plan at the present time to compile what might be called 'children-in-general' type norms." Thus, the norms will apparently continue to be based on restricted, available samples. This tends to make any interpretation of the scores, even in research projects, very tentative. The interpretations provided for the scale scores are clear, but seem to go beyond the evidence.

F. *Parent Survey:* In addition to measure obtained directly from testing the pupil, it was decided that a survey of parent perceptions of the program's effect would be conducted. Accordingly, a survey questionnaire was drafted which contained four major parts:

- A solicitation for parents to directly assess the effects of the program in the five major evaluation concern areas.
- A request for parents to identify their sources of information about the program.
- An invitation for parents to comment on the strengths and weaknesses of the program.
- A request for parents to provide an overall rating of the quality of the program.

The draft questionnaire was reviewed by the program staff; the revised version was set in type on and IBM composer and was readied for distribution.

G. *Archival Measures:* Several ancillary pieces of information were selected to permit a more extensive analysis analysis of the results of the study. These were obtained from the archives of the Alexandria school system; they are:

1. Age
2. Sex
3. Grade
4. Ethnic background
5. School Lunch Subsidy Code
6. Total days membership in the program
7. Total days absence from the program

This information was generated by the program staff.

APPENDIX B

AIDS TO INTERPRETING STATISTICAL RESULTS

EXPLANATION OF "SIGNIFICANCE"

It is always possible that statistical information may appear to have meaning and yet be absolutely unrelated to the phenomenon from which they were abstracted. For example, it is *theoretically* possible that a person throw a deck of cards into the air and have all the black cards land to his left and the red to his right–however, experience has taught us that this is extremely unlikely to happen. Thus, if we were to witness such a performance, we would not attribute the results to "chance" or "coincidence" but rather to some skills or artifice of the card-thrower.

Statistical techniques have evolved to assist in the making of similar decisions about the likelihood of data appearing in meaningful patterns without any underlying reason. In particular, the *analysis of variance/covariance* is a technique for examining the effects of several variables at once.

The technique permits the assessment of the likelihood that a given arrangement is due to "chance"–and yields information in the following form:

(p L.T. .05)

This is read: the probability (p) that a given arrangement could have occurred by chance is less than (L.T.) five times out of 100. The "cutting point" where researchers rule out "chance" or "random arrangement" of data as an explanation of a phenomenon is .05.

Explanation and Interpretation of Components in the Analysis of Variance/Covariance

A Significant Effect of Each of These Terms:	Is Interpreted As
Gifts Main Effect	Averaging over program options and trials, the academic group is significantly different from the talented group.
Groups Main Effect	Considering academic and talented together and averaing over trials, the three program options are different from each other.
Trials Main Effect	Averaging over program options and academic/talented, the post measures are significantly different from the pre measures.
Gifts by Groups Interaction	Averaging over trials, the difference between academic and talented groups varies significantly among the program options.
Gifts by Trials Interaction	Averaging over program options, the academic group experienced a significantly different change from pre to post than did the talented.
Groups by Trials	Averaging over academic and talented, one or more of the program options experienced a significantly different change from pre to post than did the others.
Gifts by Groups by Trials	Of the six individual combinations of gift (academic/talented) and option (IA/CLC/ENR), some experienced significantly more change from pre to post than did the others.

In general, the between groups comparison (gifts, groups, gifts by groups) do not necessarily indicate or support the effects of an educational program (i.e., one which intended to produce change) because they average over trials.

A unitary effect of trials is also not necessarily an argument for the effectiveness of a program, because of the averaging over "gift" and program option: thus, the effects could be explained by a process of maturation.

The interaction between "gift" and trials is also not conclusive evidence because it is subject to the alternative explanation that the academic and talented groups simply progress at different rates.

The interactions involving groups and trials (O x T and G x O x T) provide the clearest tests of the effects of the program. Examination of these interactions provides the most definitive picture of the program effects when a control group (which receives no treatment) is included. Since this study could not include such a group, the ability to infer program effects from groups by trials and gifts by group by trials interactions is diminished somewhat, although such significant interactions are support for concluding that differences exist among the options.

APPENDIX C

SUMMARY OF COMMENTS

MADE BY PARENTS

SUMMARY OF PARENT COMMENTS

MOUNT VERNON SCHOOL

STRENGTHS

1. The teacher (Mrs. Kuperstein)--makes kids feel "special"
2. Small groups
3. Children able to progress at own level
4. Children can leave regular classes
5. Child is motivated to practice music
6. Learning opportunities that child wouldn't normally have
7. Child likes reading program
8. Child can put talents to best use
9. Showing child the worth of finishing long-term projects
10. Child has opportunity to make choices
11. Creative writing opportunity

WEAKNESSES

1. Program should begin at an earlier grade level.
2. Need to know more about program
3. Child feels "too special"
4. Musical instruments are too expensive
5. Child's records were lost in inter-district transfer, parent had to complain extensively to get child retested
6. Regular teacher didn't approve of child being in program
7. Child had difficulty in "catching up" with regular work

STONEWALL JACKSON SCHOOL

STRENGTHS

1. Math and science programs
2. Special field trips
3. opportunity to learn new things
4. Ms. Rieman is an excellent teacher
5. Child has become "inquiry oriented"
6. Child has greater opportunity to express himself
7. Children aren't "bored"
8. Stimulation of student with more challenging work
9. Freedom, trust and responsibility
10. Variety of exposure to many new and different activities
11. Individualized instruction
12. Physical education program

WEAKNESSES

1. Teachers didn't seem interested in corresponding with parents
2. No information received about child's progress in the program
3. Scheduling problems
4. Program ends in 6th grade
5. Trouble in catching up with regular classroom work
6. Hostility from regular classroom teachers
7. Program should be more integrated with the rest of the school
8. Children shouldn't be taken out of regular class for special P. E.

JOHN TYLER SCHOOL

STRENGTHS

1. Child can work to own ability level
2. Child is interested and not bored
3. Gives child avenues to demonstrate his creative ability
4. Makes child aware of potential
5. Program is stimulating

WEAKNESSES

1. Not enough information
2. Closer contact with parents needed

LYLES-CROUCH SCHOOL

STRENGTHS

1. Small groups, interesting materials
2. Child can progress at own rate of learning
3. Positive attitude of teacher
4. Individualized attention
5. Research projects
6. Emphasis on the joy and wonder of learning
7. Child is interested and motivated
8. Outside research and organization of activities
9. Mrs. Caldwell is a very dedicated and genuinely interested teacher
10. Better academic standards than normal classes
11. Recognition that intellectual curiosity and academic achievement are valuable
12. Learning how to talk in front of people
13. No disruptive students in CLC classroom

WEAKNESSES

1. Selection criteria don't admit borderline case
2. Child should be allowed to enroll in more CLC classes
3. "Gifted" is difficult term for children to deal with
4. Limited information
5. Limitations on number of pupils admitted to program
6. Coordination with regular classroom
7. Child may miss a "major" subject while participating
8. Scheduling is very complicated
9. Program needs additional stimulating activities
10. Insufficient attention given to children that are quiet
11. Too much ground being covered
12. Basics are ignored (multiplication of fractions. . .)
13. Sixth grade child spends an inordinate amount of time on homework
14. Separation of pupils is divisive

GEORGE MASON SCHOOL

STRENGTHS

1. High quality teaching from Ms. Race, Ms. Stock and Ms. Shaw
2. Shared enthusiasm with other students
3. Emphasis on self-reliance
4. Individual attention to students
5. Math portion of program
6. Child's confidence has been raised
7. Extensive reading is excellent and math program is "astounding"
8. Positive environment
9. All-city orchestrat is a "beautiful experience"
10. Kristen Race
11. Child is able to get ahead of the regular classroom
12. Child's attitude has become better
13. Freedom to move at own pace
14. Offers an environment where the gifted aren't stigmatized
15. Early exposure to topics which will be useful in high school
16. Environment doesn't have discipline problems like the regular classroom
17. Develops mature study habits

WEAKNESSES

1. Arts pupils miss regular classroom subjects
2. Disagreement between CLC teacher and regular teacher
3. More children should be admitted to the program
4. Regular teachers have elevated expectations for pupils performance
5. Program should be extended to higher grades
6. Program's budget is too low
7. Individualization needs to be increased
8. More emphasis on graphic arts
9. More information about the program
10. Selection criteria should include "maturity"

CHARLES BARRETT SCHOOL

STRENGTHS

1. Bolsters student's confidence by "officially" recognizing his potential
2. Child could explore new dimensions in music thru orchestra
3. Classroom freedom is important
4. Training in research and problem-solving will help child in school and later life
5. Drawing, carving and painting
6. Allows children who are not academically bright to show their talents in other areas
7. Child gets to show true abilities to teachers
8. Every student works at own pace
9. Ms. Beckman is an excellent teacher
10. "We praise and recommend the Alexandria schools because of the program"
11. High motivation among pupils
12. Personal assistance in math
13. Child is not held back in any way

WEAKNESSES

1. Child complained that work was "too easy"
2. Scheduling problems
3. Talented program should be more selective
4. Rote work should be eliminated
5. Effort should be made to bring in more minorities
6. Children should go directly to CLC rather than reporting to homeroom
7. Children with more than one art talent should be able to pursue them as in academics
8. Increase homework during the week, reduce on weekends
9. Time conflicts
10. Regular teacher resents the program

PATRICK HENRY SCHOOL

STRENGTHS

1. Child has developed insights
2. Since child understands dissection, he might go on to medical school
3. Helps child excel in school
4. Scientific experiments have challenged child
5. Chance to play music in ensemble; to meet children from other schools
6. Child can be useful and feel good about himself
7. Gifted child needs as much help as a slow learner
8. Makes other subjects easier to cope with
9. Child is more enthusiastic

WEAKNESSES

1. More communication between parent and teacher
2. Program should be expanded
3. In order to avoid "elitism" the teacher avoids praise. Child is suffering for lack of reinforcement for good work
4. Would prefer learning center over enrichment
5. Parents should be better informed
6. No information about the program

ROBERT E. LEE SCHOOL

STRENGTHS

1. Child can learn at own pace
2. Child has stayed at Lee instead of going to private school because of the program
3. Small class size
4. Pace of exposure is a little faster than in regular class
5. Child can be accelerated without being removed from general classroom setting
6. Challenge of learning beyond the standard
7. Dissection, wagon train simulation
8. Emphasis on broadening and enriching rather than acceleration
9. Enhancement of self-esteem

WEAKNESSES

1. Not enough information
2. Gifted should have their own teacher and classroom
3. Program is disruptive to daily schedule
4. Communications problems
5. Should be part of daily work, not one period per week
6. Total lack of parental participation
7. Labeling by classroom teacher.
8. Lack of coordination from classroom teachers

WILLIAM RAMSAY SCHOOL

STRENGTHS

1. Open child's mind to world around him and not hold him to the norm
2. Child is encouraged to do his best
3. Research-type projects
4. Child can succeed in areas outside the academic
5. Freedom of the teacher
6. Taking advanced work and accomplishing something
7. Child enjoys dissection
8. Child has sense of pride
9. Improvement over "normal" Alexandria system

WEAKNESSES

1. More parent involvement
2. More information about the program is needed
3. More definite goals for each child
4. Child isn't working up to her ability
5. Try to reach more children
6. Separate gifted from "normal" children

APPENDIX D

SPECIMEN COPIES OF
PARENT AND TEACHER SURVEY FORMS

Program for the Gifted & Talented
Alexandria Public Schools
QUESTIONNAIRE FOR PARENTS

Hello. The Alexandria Public Schools have commissioned this survey to include the observation, concerns and feelings of parents in the improvement and evaluation of the program for the gifted and talented. Since these decisions will affect the future of the program, it is important that you make your voice heard by completing and returning this form.

Directions. This questionnaire asks you to provide both objective and subjective information; we invite you to write as much as you wish about any of the topics that are on this form and to discuss any that may have been omitted. You may attach extra sheets of paper of your own. We would, however, appreciate your completion of the questions which ask you to give your opinion on an Attitude Scale as demonstrated below.

Example: How do you feel about baseball?

( )	( )	( )	(X)	( )
love it				hate it

Comment: I prefer football.

In this example, the respondent has indicated that he is not fond of baseball and has used the space marked "comment" to clarify his response. (Use of this space is optional.)

Confidentiality. You need not place your name on this questionnaire. Comments made by individuals will never be used in any public discussion of the results.

1. Please describe each of your children that are in the program for the gifted and talented by checking the box that applies.

	SEX		GRADE			PROGRAM TYPE		SCHOOL (fill in)
	male	female	4	5	6	Academic	Talented	
Child 1	( )	( )	( )	( )	( )	( )	( )	_____
Child 2	( )	( )	( )	( )	( )	( )	( )	_____
Child 3	( )	( )	( )	( )	( )	( )	( )	_____

2. Read through the following list and do two things: (a) indicate those persons with whom you *have* discussed the Gifted and Talented program; and (b) indicate those persons that you *would like* to talk to:

PERSON	Have talked to	Would like to talk to
Child's classroom teacher	( )	( )
Child's principal	( )	( )
Child's teacher in gifted program	( )	( )
School psychologist	( )	( )
School administrator	( )	( )
Other _____	( )	( )

3. To what extent have you been informed about your child's progress in the Gifted and Talented program?

( )	( )	( )	( )	( )
have received little or no information				have received much information

Comment: _____

4. From your view as a parent, estimate how the Gifted and Talented program has affected your child's progress in school in comparison with the period before he entered the program.

( )	( )	( )	( )	( )
child has accomplished much more in school				child has accomplished much less in school

Comment: _____

5. Estimate how the program has affected your child's *creativity*.

( )	( )	( )	( )	( )
child is much less creative		about the same		child is much more creative

Comment: _____

6. Estimate how the program has affected your child's relations with other children.

( )	( )	( )	( )	( )
child gets along with others much better		about the same		child gets along with others much worse

Comment: _____

7. Estimate how the program has affected how your child feels about himself.

( )	( )	( )	( )	( )
child is much more confident of himself		about the same		child is much less confident of himself

Comment: _____

8. Estimate how the program has affected your child's attitude towards learning?

( )	( )	( )	( )	( )
child is much *less* enthusiastic about learning		about the same		child is much *more* enthusiastic about learning

Comment: _____

9. What do you think the best parts of the Gifted and Talented program are? _____

_____

_____

_____

10. What parts of the Gifted and Talented program should be changed? _____

_____

_____

_____

11. Considering everything, how would you rate the Gifted and Talented program?

( )	( )	( )	( )	( )
excellent				poor

Comment: _____

You may use the space below for any additional comments; feel free to attach additional sheets if you wish. When you have completed this form, please place it in the return post-paid envelop and drop it in the mail. Thank you.

QUESTIONNAIRE FOR CLASSROOM TEACHERS

The purpose of this survey is to solicit your opinions about the *Program for the Gifted and Talented* as part of an ongoing evaluation study. Participation in this survey is entirely voluntary on your part.

The study is being conducted by Dr. Frank Morra of the University of Virginia as an impartial third-party effort. It is requested that you *not* place your name on this form. If you should elect to participate in this study, please complete the following few brief questions and return the form in the attached post-paid envelope. All individual results will be kept in strictest confidence and only summary statistics will be reported to program management.

Several of the items on this form request that you use an *attitude scale* as demonstrated below:

How do you feel about baseball?

( ) ( ) ( ) ⊗ ( )

Love It Hate It

Comment: I prefer football

You are encouraged to make use of the "Comment" space; further, if you feel that a topic has not been adequately treated, please enclose a separate sheet detailing your concerns.

1. Please rate the extent to which you have been informed about the Program for the Gifted and Talented:

from: G & T teachers	( )	( )	( )	( )	( )
from principal	( )	( )	( )	( )	( )
	I have received little or no information				I have received much information

Comment: _____

2. Please assess the adequacy of the training or preparation that you received for working with the staff of the Gifted and Talented program:

( ) ( ) ( ) ( ) ( )

very inadequate inadequate very adequate

Comment: _____

Please provide any suggestions which you feel may improve the training or preparation of teachers to work with the staff of the Gifted and Talented program:

_____

_____

_____

_____

3. Please rate the extent to which you have had professional (i.e., not social) contact with the staff of the Gifted and Talented program:

( )	( )	( )	( )	( )
Contact has been very frequent				Contact has been very infrequent

Comment: _____

4. Please assess the extent to which materials, ideas, suggestions and the like have been exchanged between the Gifted and Talented program and your classroom:

( )	( )	( )	( )	( )
Very little or none at all				To a large extent

Comment: _____

5. Please rate the extent to which you have received feedback from the Gifted and Talented program about the progress of pupils in your classes:

( )	( )	( )	( )	( )
Detailed feedback received				Little or no feedback received

6. Various aspects of the Program for the Gifted and Talented (G & T) affect the classroom routine in several ways; please rate the extent to which the following activities have affected your classroom routine:

ACTIVITIES	Little Effect				Severe Disruption
Art or Music pupils leaving the classroom	( )	( )	( )	( )	( )
Academic pupils leaving the classroom	( )	( )	( )	( )	( )
Working with G & T program staff	( )	( )	( )	( )	( )
Preparation of reports on G & T pupils	( )	( )	( )	( )	( )

If any other activities of the Gifted & Talented program have had effects on your classroom routine, please describe them:

_____

_____

_____

7. Have any of the activities of the Program for the Program for the Gifted and Talented made a contribution to your classroom?

( ) Yes ( ) No

If you answered "Yes," please describe them below:

_____

_____

_____

8. Please rate your attitude toward differentiated education for both the handicapped and the gifted:

	Can be very detrimental				Can be very beneficial
Differentiated education of the handicapped	( )	( )	( )	( )	( )
Differentiated education of the gifted	( )	( )	( )	( )	( )

Comment: _____

9. On the basis of your professional experiences with and observations of pupils involved with the Gifted and Talented program, please rate the extent to which the following types of changes occurred:

	Very few children				Very many children	Can't say
Improvement of self-concept	( )	( )	( )	( )	( )	( )
Improvement in attitude toward learning	( )	( )	( )	( )	( )	( )
Improvement in social relations	( )	( )	( )	( )	( )	( )
Increased academic achievement	( )	( )	( )	( )	( )	( )
Increased creativity	( )	( )	( )	( )	( )	( )

Comment: _____

10. Please assess the extent to which you believe the program for the Gifted and Talented program has produced at attitudes of *elitism* in pupils:

	Very few children				Very many children	Can't say
Type A: Pupils in the G & T program exhibit attitudes of superiority	( )	( )	( )	( )	( )	( )
Type B: Pupils not in the G & T program exhibit attitudes of inferiority	( )	( )	( )	( )	( )	( )

Comments and/or suggestions for improvement: _____

_____

_____

11. Please give your assessment of the selection procedure for the Gifted and Talented program by answering the following questions:

a. On the basis of your professional experience and observation, how many children that are currently *in* the Gifted and Talented program, should *not have been selected?*

	Very few children				Very many children	Can't say
Academic areas	( )	( )	( )	( )	( )	( )
Art, Music or Kinesthetics	( )	( )	( )	( )	( )	( )

b. How many children that are not currently involved with the Gifted and Talented program *should have been selected?*

	Very few children				Very many children	Can't say
Academic areas	( )	( )	( )	( )	( )	( )
Art, Music, or Kinesthetics	( )	( )	( )	( )	( )	( )

c. Please record any comments, observations, and/or suggestions which you may have with respect to selection procedures: _____

_____

_____

Please give your overall assessment of the program for the Gifted and Talented:

( ) ( ) ( ) ( ) ( )
Excellent Poor

( ) Can't say

Comment: _____

12. Have any occasionas arisen in which pupils from the Art or Music talented groups have been able to use these talents in contribution to the work in your classroom?

( ) Yes ( ) No

If you answered "Yes," please describe the nature of this contribution: _____

_____

13. Have you experienced any problems in working with the special instructors for Art, Vocal Music or Instrumental Music?

	No problems	Some problems	Severe problems
Art	( )	( )	( )
Vocal Music	( )	( )	( )
Instrumental Music	( )	( )	( )

Comments and observations: _____

_____

14. Have you attended any performances and/or exhibitions produced by pupils involved in the program for the Gifted and Talented?

	None				All
Last year (i.e., AY 1974-1975)	( )	( )	( )	( )	( )
This current academic year, to date	( )	( )	( )	( )	( )

Comment: _____

_____

15. Please assess the extent to which the Interest Activity (IA) teacher participates in the evaluation of those pupils who are assigned to both your class and the program for the Gifted and Talented. Please check the alternative which best applies.

( ) The IA teacher makes suggestions for the evaluation of each shared pupil, for my action.

( ) I discuss the evaluation of each shared pupil on a case-to-case basis with the IA teacher.

( ) The IA teacher is responsible for the evaluation of the pupil within the subject area(s) for which he or she was selected.

( ) Other (please describe) _____

_____

Comments: _____

16. Please rate the extent to which the pupils' work in the interest activity subgroups either adds to or detracts from the work in the regular classroom:

( )	( )	( )	( )	( )
Greatly enhances classroom work		Neither enhances nor detracts		Seriously detracts from classroom work

Comment: _____

17. Please assess the extent to which pupils were correctly assigned to interest activity groups:

AREAS	Most children placed correctly				Few children placed correctly
Math	( )	( )	( )	( )	( )
Science	( )	( )	( )	( )	( )
Language Arts	( )	( )	( )	( )	( )
Social Studies	( )	( )	( )	( )	( )
Kinesthetics	( )	( )	( )	( )	( )

Comments: _____

_____

15. To the best of your ability, please estimate the number of hours in an average week that the Helping Enrichment Teacher (HET) spends with you in the following activities:

HET ACTIVITIES	Write your estimate of the number of hours in the spaces provided
Observation of pupils	
Working with you in enriching pupil's individual programs	
Working with you in the evaluation of pupil progress	
Working with individual pupils	
Other activities involving either you or pupils (please specify)	

_____

Comments: _____

_____

16. To what extent has the HET given you materials or leads to materials for the enrichment of pupil progress?

( ) To a large extent ( ) ( ) ( ) ( ) To little or no extent

Comment: _____

_____

17. To what extent have materials received from the HET added to your entire class (i.e., including those pupils who are not in the Gifted & Talented program?

( ) Have added greatly ( ) ( ) ( ) ( ) Have not added at all

Comment: _____

_____

15. Have you experienced any problems resulting from the arrangements whereby the Curriculum Area Learning Center teacher assigns grades to pupils?

( ) Yes ( ) No

If you answered "Yes," please describe these problems: _____

_____

16. Please rate the extent to which the pupils' work in the Curriculum Area Learning Center either enhances or distracts from the work in the regular classroom:

( )	( )	( )	( )	( )
Greatly enhances classroom work		Neither enhances nor distracts		Seriously distracts from classroom work

Comment: _____

17. Please assess the extent to which pupils were correctly assigned to CLC classes:

CLASSES	Most children placed correctly				Few children placed correctly	Can't say
Math	( )	( )	( )	( )	( )	( )
Science	( )	( )	( )	( )	( )	( )
Language Arts	( )	( )	( )	( )	( )	( )
Social Studies	( )	( )	( )	( )	( )	( )

Comment: _____